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C a n c e r : P u b l i c H e a l t h P r o b l e m

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SHAFT OF LIGHT—Prostigmin 'Roche' is undoubtedly one of the most outstanding achievements of the past decade. In clinical research Prostigmin is proving a shaft of light helping the profession to combat successfully a number of disorders, the treatment of which has hitherto been a groping in the dark. Surgeons everywhere use it as a routine measure in preventing abdominal distention and urinary retention—and to the myasthenia gravis patient Prostigmin has indeed come as a shaft of light in his dark world of suffering and disability . . .

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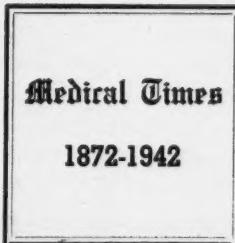
Basic Reasons for the Therapeutic Values in Natural Mineral Waters

MIRABILE DICTU, spa therapy has passed out of its erstwhile empirical phase and is fast becoming solidly rationalized. Just as was the case with Finlay and the yellow fever zone, a band of scientists has moved in and elucidated that which was veiled and obscure. There have been Finlays who were aware of the therapeutic efficacy of spa treatment for certain ailments, but they were obliged to await the advent of Walter Reeds. Well, the Reeds have arrived.

That section of the Annual Report of the New York State Conservation Department which deals with Saratoga Springs makes interesting and enlightening reading. There now exist facilities for clinical, laboratory and research work at the Saratoga Spa which are yielding results that help to account for the effects of the natural mineral waters in alleviating a number of human ills. The clinical, laboratory and research data which are accumulating and in process of correlation and publication are impressive.

A good deal of this work has to do with the enzyme-like or catalytic action of the waters. It seems that the general therapeutic effect of natural mineral waters runs parallel with their catalase and oxidase action. It is now possible to designate these waters by actual units, as in the case of vitamins.

The research workers at the Saratoga Spa are disposed to see special significance in the functional mechanisms in the organism of the so-called trace metals; in this case such elements as beryllium, titanium, tin



and zirconium. These trace elements, studied by radioactive and isotopic means, are conceived to be, or to partake of the nature of, "inorganic vitamins," having notable effects upon the animal and human cell.

It would seem beyond doubt that this work at the Saratoga Spa will elevate natural mineral water research to the same level as vitamin and hormone investigation.

The foregoing remarks pertain only to the internal use of the waters. Their external use in certain cardiac conditions, by reason of the CO₂ content, depends upon physiologic mechanisms with which the medical profession is already familiar.

The alignment of today's Saratoga Spa with the methods and standards of organized medicine is attested by the regular meetings of the staff, the cooperation with medical societies, hospitals and medical schools, the participation of the personnel in the proceedings of scientific bodies, the recording of clinical and laboratory work and research in the accredited organs of the profession, and the service of Dr. Walter S. McClellan, Medical Director of the Saratoga Spa, as Acting Chairman of the Committee on American Health Resorts of the American Medical Association.

Climate Makes the Man

ACCORDING to Mills (*Climate Makes the Man*, Harper, 1942), medical experimentalist of the University of Cincinnati, man is what climate makes him. Under temperate zone conditions he becomes the ruler of the world. It is his excess of energy, thinks Dr. Mills, that accounts for

his early exhaustion and degenerative breakdowns—in the form of diabetes, high blood pressure, heart failure, alcoholism and addiction to narcotics and stimulants.

Mills goes so far as to contend that it was a prolonged period of warmth that produced the Dark Ages and that a succeeding coolness produced the Renaissance. The warmer temperatures of today account for our present slump in progress and the birth rate.

North America is man's optimum habitat, from Mills's point of view.

In the tropics food is not so rich in the vitamin B group. So here is a climatic factor to be taken into account by our militarists. If our men are to fight well in a zone calculated to depress them physiologically they should be well supplied with this vitamin group.

Madmen Will Knock at Our Door

SOME of our State Hospitals are said to care for foreign-born insane inmates constituting as high as 53 per cent of their populations, with aliens running to 35 per cent. There has been a great increase in recent years. The mental defectives, criminals and indigent persons in our institutions who are foreign-born or the children of foreign-born parents must also be reckoned with by the thousands.

In view of the frightful European situation and the consequence thereof in terms of further degeneracy of foreign populations, it behooves us to safeguard immigration into this country after the war.

Age and Office

SOME wit has said that "arteriosclerosis is a required thing in order to hold a key position in the British cabinet." But we don't have to look so far. Here at home are horrid examples enough in the political field.

A distinction, of course, has to be made between age without, and age with, certain conspicuous and even ghastly stigmata of arteriosclerosis. Such stigmata, when plainly visible in one holding high political place, especially connote the ghastly.

The lives of the young and the fate of nations should never be made to depend upon hardened bloodvessels in the skulls of aged politicians.

When these degenerated ones bear the mace of office death is written obscenely into laws and customs.

Euthanasia, Japanese Style

IN a press interview on September 15 General Sir Thomas Blamey, commander in chief of all Allied land forces in the Australian region, described the Japanese custom of taking away wounded who stood some chance of recovery, whereas if a soldier was too badly hurt he was shot in the heart. Some form of euthanasia is employed when time makes it practicable.

We wonder whether the euthanasia propagandists in this country regard this practice in the nature of further progress in the application of their teachings. Or would they prefer to see an attempt at removal of all wounded in all theaters of the war? The latter attitude would seem almost too old-fashioned for them.

Announcement

IT is a pleasure to announce that Dr. Madge C. L. McGuinness will sponsor editorially the Physical Therapy section of *Contemporary Progress*, for so long ably conducted by Dr. Norman E. Titus, now with the armed forces. The distinguished place that Dr. McGuinness holds in her field assures the *MEDICAL TIMES* and its readers that the Physical Therapy section of the journal will continue on the same high level.



Acute Intussusception

Etiology and Treatment
With Case Presentation

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INTUSSUSCEPTION or invagination is a condition where one portion of the intestine slips into an adjacent portion, thus forming a cylindrical tumor varying in length from half an inch to a foot or more. The invagination is descending, the reverse is rare; although during the past decade retrograde intussusceptions have been frequently described and can involve any portion of the gastro-intestinal tract, from the sigmoid to the stomach.

Acute intussusception is predominantly a disease of infancy and early childhood; occurring most frequently in infancy. At this age it is the most common cause of acute intestinal obstruction. Reports show that 75 per cent seem to occur during the first two years of life and half of these during the first nine months. The occurrence seems to be twice as frequent in males as in females. Breast feeding or artificial feeding does not seem to play any important rôle.

The agonal type or intussusception of the dying is frequently found at autopsies made upon infants. In this type the invagination is descending, enteric, multiple and easily reducible. It is more common in the jejunum than in the ileum. It is probably produced during the death agony and is of very little significance. Intussusception among adults is less frequent. Trauma is a frequent factor in adult life. It can be caused by acrobatic feats, lifting of heavy weights, wrestling and football (Elliot and Corscadden).

Among other causes in adult life are to be mentioned polypi, lipomata of the ileum and Meckel's diverticula.

A N intussusception is made up of (a) the *intussuscipiens* or outer ensheathing layer, and (b) the *intussusceptum*, the portion within the ensheathing layer. On

transverse section there will be found three thicknesses of bowel—(1) the ensheathing layer, (2) the returning part of the intussusceptum, and (3) the entering part. Some authors add the terms *neck* and *collar*; the former is applied to that portion where the intussusceptum passes within the ensheathing bowel; the collar is the doubling up of the bowel where the intussuscipiens joins the returning part of the intussusceptum.

Varieties

THE types occurring in the small intestine are called *enteric*; those of the large intestine are called *colic*. According to the anatomical involvement they are thus called *enteric*, *colic*, *ileo-cecal* and *colico-rectal*. And yet, this anatomical sub-division is not absolutely constant. In many instances the intussusceptum began in the small intestine and descended as far as the rectum.

Etiology: Anatomicophysiological Considerations

THE muscular coat of the small intestine is divided into an external longitudinal layer and an internal circular layer, the latter being the thicker of the two. Bayliss and Starling have described what they call the *law of the intestine*, viz., that distention of the intestine at any point by intestinal contents causes constriction of the muscles higher up (that is, toward the stomach) and relaxation of those lower down (that is, toward the anus).

This reaction is called the *myenteric reflex* and it involves the ganglionic plexuses of the intestinal nerve net and behaves like an independent reflex. It has been demonstrated that the peristalsis occurs even when all possible nerve connections of the intestines are cut. The myenteric

reflex depends upon the arrangement of the intestinal structures. Distinct from the intrinsic and autonomous nerve control, the intestines receive excitatory stimuli from the vagus nerve and inhibitory stimuli from the splanchnic nerves. The normal direction of the peristaltic wave is from the proximal and toward the distal portion.

Mall severed a portion of the intestine (in animals) and sutured it so that the lower end was sutured to the upper part of the intestine and the upper end was sutured to the lower part. Some of the animals made a good recovery, but showed signs of malnutrition. After they were killed, examination of the intestine showed that the intestinal contents were found to have accumulated just above the reversed segment, thus demonstrating conclusively that that portion had failed to take up the peristaltic wave and had failed to propel the food downward.

CANNON describes the vermicular motion of the bowel during the normal process of digestion as having two distinct phases: (a) the *segmenting* or dividing motion and (b) the *peristalsis*. He goes on to explain that the segmenting motion is caused by a contraction of the circular fibers occurring at an equidistant region, lasting a few seconds or more. As these muscles relax, contractions of other muscles occur and so the whole series of motions go on rhythmically at a rate of 20 or 30 contractions a minute. He further states that through these segmenting contractions, the intestinal contents are thoroughly mixed and propelled forward. From time to time these segmenting or dividing rhythmic movements are followed by peristalsis.

The peristaltic wave is brought on by the longitudinal muscular layer contracting along the longitudinal axis of the bowel. These movements are preceded by an inhibitory phase.

The third type of the intestinal movement occurring in the large intestine is called by Cannon, *anastalsis*. (Ana—upward, or anti-peristalsis, in contradistinction to peristalsis.) When the anastalsis is replaced by a downward movement, "the

peristalsis," the intestinal contests are propelled toward the rectum.

IT has seemed important to me to offer a résumé of Cannon's explanation of intestinal movements because many investigators, in a large percentage of cases, especially during infant life, have failed to find any apparent cause for the invagination. The possibility, then, of a disturbed rhythm in the intestinal wave might be offered as a logical factor, since Albrecht v. Haller was able to produce artificial intussusception at will in frogs by using stimuli which would act on the circular fibers only. The cause of the invagination is usually attributed to some organic defect or to some pathological lesion on the part of the bowel. Schematically, then, the causes of intussusception can be classified into:

(a) *Predisposing Mechanical Causes:*

POLYPOID growths on the mucosa, (2) lipomata, (3) Meckel's diverticula, (4) abnormality of the mesentery, (5) disproportion in size between the small intestine and the large, such as a megacecum, in which case a prolapse of the ileo-cecal portion can easily occur, (6) excessive motility of the cecum and descending colon, (7) hypertrophied Peyer's patches, and (8) diseased appendix.

(b) *Arrhythmia of the Intestinal Wave or Irregular Peristalsis*

BEARING in mind the classic experiment of Albrecht v. Haller on frogs, in cases where no apparent cause can be found it has been suggested that the normal intestinal rhythm or normal tonic contractions of the circular and longitudinal muscle layers can be disturbed by food irritation, producing a spasm of the circular muscles followed by a constriction of that segment which might form the apex of the intussusceptum. Among other causes can be enumerated acute indigestion, diarrhea, prolonged crying, fright, constipation, straining and the use of drastic cathartics.

Symptoms

THE symptoms of acute intussusception can be summarized in the following: (1) sudden abdominal pain, (2) vomiting, (3) passage of mucus and blood in

the stool, (4) the presence of a sausage-like mass in the abdomen, the latter being usually found soft.

Pains

AN infant enjoying good health may or may not have a short attack of diarrhea, becomes restless, refuses to nurse, is suddenly seized with recurrent abdominal pains, paroxysmal in character, soon followed by vomiting. The attacks increase in frequency, become more acute and distressing, and the infant shrieks violently; also these intermittent colicky abdominal pains are not only constant, but are pathognomonic.

Vomiting

SETS in early, is persistent, uncontrollable and often projectile. At first the vomitus is made up of gastric contents and later becomes bilious. Fecal vomiting is rare in infants.

Blood in the Stool

AT the outset, there may occur small fecal movements followed by passage of clear blood or bloody mucus. At times a digital rectal examination is followed by a characteristic bloody flow. The blood oozes from the mucus membrane implicated in the process or it may be extravasated venous blood, if the mesentery shares in the intussusception.

Mass

OFTEN a few hours after the onset the characteristic sausage-like mass makes its appearance, usually in the iliac fossa or in the epigastrium. The location of the mass may vary; it becomes more pronounced during the colicky attacks and in a small percentage of cases cannot be palpated at all. In nearly all cases the tumor can be felt per rectum. A flat plate of the abdomen may give some diagnostic information: viz., the presence of a gas-distended loop within which may be found a smaller loop with a narrowed neck.

Diagnosis

THE clinical picture of intussusception in most cases is so clear-cut and the symptoms so classical that it should not be difficult for the alert physician to recognize the condition.

Prognosis

THE life of the patient depends upon its early recognition and upon immediate surgical intervention. Shock, toxemia and dehydration are the most important postoperative complications, which can best be treated with glucose solution, either intravenously or by hypodermoclysis. In long standing cases, measures should be taken to treat shock and dehydration before operation. A lethal toxin is produced in an obstructed small bowel which as soon as the obstruction is released permits a more rapid systemic absorption in the immediate post-operative period, followed by rise of temperature and pulse.

Treatment:

THERE are two schools of thought regarding the treatment of intussusception: (A) Hydrostatic pressure, (B) Surgery. Hipsley, of Sidney, Australia, is an ardent advocate of the non-operative method. In his report of 142 consecutive cases, he obtained 62 per cent reduction by using a preliminary injection of saline solution per rectum. At times he used a diluted barium enema. He lays stress that the pressure column should not be more than 3 ft. 6 in. above the level of the patient and further points out that if the column of water is higher, there is always the danger of rupturing the already damaged intestinal wall. The treatment is given under general anesthesia in a room adjoining the operating room so that in case of failure the surgeon is ready to operate. He uses a 16 F. soft rubber catheter, inserting it into the rectum without lubricant so that it will stay in place. Then he pinches the buttocks to prevent any escape of fluid and permits a flow for three minutes. He allows the water to remain inside from eight to ten minutes and later collects the return flow into a bed pan. He repeats the procedure several times if necessary. Hipsley advises against any abdominal manipulation while the hydrostatic pressure is in progress. With this treatment one must be certain that there is complete reduction, and the most reliable signs are: abdominal distention which takes place when the fluid passes into the small intestines be-

yond the obstruction, and the disappearance of the abdominal tumor, followed by the passage of flatus and yellow fecal matter with the returning fluid.

The majority of investigators in America favor surgery from the beginning as the treatment of choice. A right rectus incision will permit the approach to all the quadrants and is less prone to evisceration. In a simple intussusception the reduction can easily be accomplished by milking the intussusceptum out of the intussuscipiens, accompanied with gentle traction on the proximal loop. Spontaneous reductions have been reported. These rare transitory

cases are a curiosity and not a problem. Acute intussusception causes acute intestinal obstruction, a condition which demands urgent surgical solution.

It is not the scope of this monograph to discuss the various surgical procedures should the bowel be found gangrenous after the reduction. All carry a high mortality rate. In an early simple acute intussusception some surgeons have removed the appendix or a diverticulum, with recovery following. A report from the Mayo Clinic, however, states that these acutely ill patients tolerate multiple operations better than too ambitious single ones.

THROUGH the courtesy of the Second Surgical Division of Morrisania City Hospital, headed by Dr. Peter T. Daly, the following case history reports are offered.

Case Reports:

J. R., an eight months old white male, was admitted to Morrisania City Hospital with a chief complaint of bloody stools for the duration of 18 hours. Four months previously had a gastric upset. He tended to be constipated. The day before admission, child had a normal bowel movement but that day appeared to be restless and cried throughout the day. He was given a dram of castor oil and an enema. Following the enema, he had a small bowel movement which contained a small amount of blood. The restlessness continued throughout the night and he cried occasionally. The mother gave him an enema followed by a bloody return.

On physical examination the patient appeared acutely ill, was restless and looked toxic. His abdomen was slightly distended but soft. He resented palpation. A soft mass about 2 inches long could be felt in the right lower quadrant. Rectal examination was negative. A laparotomy was performed with a right rectus incision. On entering the abdomen free straw colored fluid was found. In the right quadrant, a large mass consisting of ileum, cecum and ascending colon was found. The terminal part of the ileum (8 or 10 inches) was invaginated into itself, and this with the cecum was invaginated into the ascending colon. The intussusceptum was milked out, and a Meckel's diverticulum was found in the distal portion of the ileum. The intestine was markedly congested and cyanotic but the color improved with the application of hot pads. The diverticulum was excised. Postoperatively the child continued to look toxic, became distended and vomited dark brown fluid. The patient expired seven hours after the operation.

Second case:

J. C., a three months old white female, was admitted to Morrisania City Hospital with a chief complaint of vomiting and bleeding from the rectum of about twenty hours duration. There was no history of any previous illness. On the day before admission, the child vomited clear greenish material after each feeding. She had no bowel movement all that day and she was given an enema by her mother. There was only a faint bloody return. On the day of admission the child still had no bowel movement and the mother again noticed bleeding from the rectum following a suppository.

On physical examination the child appeared to be resting comfortably and did not appear to be in acute distress. The abdomen was soft, with no

distention, no tenderness and no palpable masses. A small amount of bright red blood was found about the anus.

An x-ray of the abdomen showed evidence of considerable intestinal distention. A fluoroscopic and radiographic examination of the colon, by means of a barium enema disclosed a normal current from rectum to cecum.

Two days later the child became definitely worse. Her abdomen became markedly distended, she vomited almost continuously and passed blood-stained mucus by rectum. She appeared lethargic and her temperature rose to 103.4°F. Intestinal obstruction now seemed definite. A laparotomy was performed through a right rectus incision. On opening the peritoneal cavity there was an escape of clear straw colored fluid. A large mass was found in the right lower quadrant which proved to be an intussusception of the terminal ileum into the cecum and ascending colon. After milking out the invaginated bowel, a small diverticulum was found about 30 cm. from the ileocecal junction. The diverticulum was excised and the abdomen was closed. The patient did very poorly postoperatively and expired 7 hours after the operation.

An autopsy was performed through the abdominal incision. The abdominal cavity contained about 200 cc. of clear, yellowish, foul-smelling fluid. The bladder was markedly distended and a persistent urachus was found attached to the umbilicus. The bowel was moderately distended. In the terminal ileum, about 30 cm. from the ileocecal valve, a gangrenous portion of the bowel was found, 5 cm. in length, involving about 1 cm. of the distally attached mesentery. There was an early terminal bronchopneumonia in the lungs.

Third case:

M. C., a seven months old white male, was admitted to Morrisania City Hospital on 3/18/38 with a chief complaint of rectal bleeding of about three and one half hours duration. There was no history of any previous illness. With the bleeding he appeared to strain as though he were trying to move his bowels. There was no vomiting, no pain or colic, and no crying.

On physical examination, the child appeared to be well developed and in an excellent state of nutrition. At times he appeared fairly alert and playful and at other times lethargic. His abdomen was soft and not tender. A sausage-shaped mass about three inches in length was palpated in the left lower quadrant. Dark red blood was oozing slowly from the rectum. There were no evidences of external injury. On rectal digital examination a balloon-like mass was palpated about one-and-one-half inches from the anal margin. A laparotomy was performed through a right rectus incision; on entering the peritoneal cavity, the cecum, ascending colon and hepatic half of the transverse colon were found to be telescoped into the remain-

ing colon, extending to the lower rectum. The intussuscepted bowel was milked out and appeared to have good color except for the cecum, which appeared moderately congested. Hot pads were applied to the bowel and the congestion subsided.

There appeared to be a congenital defect in that the cecum, ascending colon and the hepatic half of the transverse colon had no peritoneal or mesenteric attachment. The meso-appendix was anchored to the peritoneum lining the cecal fossa and the abdomen was closed.

The patient did very poorly after the operation and expired five hours thereafter.

An autopsy was performed through the abdominal incision. The cecal loops were found freely moveable in the abdominal cavity. The intestines in the region of the ileocecal valve were markedly injected and slightly thickened. The rest of the intestines appeared normal with the exception of the mucosa in the region of the ileo-cecal valve, in which the Peyer's patches were markedly hyperemic and hyperplastic. On microscopic examination the intestine showed a diffuse lymphocytic infiltration and hyperemia, with swelling of the small vessels. A few discrete nodes were seen in the submucosa.

Fourth case:

P. H., a fifteen months old white male, was admitted to Morrisania City Hospital with a chief

complaint of abdominal pain and vomiting of about twelve hours duration. No previous illnesses. At 11:00 A.M. on the day of admission the child passed a light yellow stool and following this he appeared to be in discomfort as he rolled around in bed holding his abdomen. A neighbor then gave him an enema which he expelled completely with streaks of bright red blood. Within the next hour he vomited four or five times.

On physical examination the abdomen was soft and a rather indefinite sausage-shaped mass was palpable in the right lower quadrant which was slightly tender on pressure. No masses were palpable on digital rectal examination, but there was a small amount of bright red blood on the examining finger.

Eight hours after admission a laparotomy was performed through a right rectus incision. A section of about six inches of the terminal ileum was found to be telescoped into itself and this in turn was invaginated into the cecum and ascending colon. The intussuscepted intestine was moderately cyanotic, but, soon after reduction, the color readily returned.

The patient had an uneventful postoperative course and was discharged ten days after operation. He was again seen 6 months later, at which time he was readmitted to this hospital with a diagnosis of infectious mononucleosis.

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* Arranged in order of date of publication.

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2397 TIEBOUT AVENUE.

Cardiotherapy

WITH DIGITALIS

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THE whole problem of cardiac therapy has for many years been intimately concerned with the use of digitalis. Authorities are in universal agreement that digitalis is cardinally indicated in congestive heart failure to diminish dilatation of the heart and to increase cardiac efficiency. Seizures of dyspnea are abolished and diuresis is effected. Other indications for use of this drug include auricular fibrillation where dramatic results have often been observed in reducing the heart rate, in correcting gallop rhythm, in warding off impending failure, etc.

The mode of digitalis administration plays an important part in cardiac treatment. The too frequent use of unsatisfactory digitalis preparations, as well as improper dosage, has led to unsuccessful therapeutic effects in certain instances and perhaps helps explain also the non-uniformity of clinical results as reported by various authors. The tincture of digitalis has long been known to possess definite disadvantages (1,2,3). It is inferior to whole leaf preparations as contained in tablets which retain their potency for much longer periods. Furthermore, the dosage of tablets can be closely controlled whereas that of the tincture can be only roughly approximated by a medicine dropper, which is usually employed by the patient. Tincture of digitalis appears at times to precipitate attacks of angina pectoris in susceptible patients whereas the powdered form from whole leaf rarely, if ever, has such an effect (4,5). The tincture is less palatable and less convenient since it must be measured out each time. There is often confusion on the part of the patient between minims and drops in measuring the dose. As far as the infusion and fluidextract

of digitalis are concerned these preparations are now clearly recognized as being unreliable because of their rapid deterioration. Granted that the powdered form is now preferred for several reasons, some patients have found, however, that ordinary tablets of digitalis are disagreeable because of an acrid taste.

ALTHOUGH it is now accepted that the emetic action of digitalis produced in some patients is not essentially local on the gastric mucosa, various investigators have reported that the principles of digitalis may cause some irritation in the stomach (6). Research has also produced evidence showing that some deterioration of the glucosides of digitalis results when the latter come in contact with gastric juice (7,8,9).

The desired ability to closely regulate dosage depends to a great extent on accurate assay of the medication as well as its stability. Without knowing the potency of the digitalis preparation at the time of administration, either under- or over-dosage usually occurs and results in unfavorable consequences. For this reason, in addition to proven stability, the actual method of bioassay plays an important role in standardizing digitalis samples and thus facilitating exactly controlled dosage for the patient. The intravenous cat method yields results which are purely cardiac and thus measures the characteristic digitalis effect (10,11). Also, the cat's heart probably resembles the human's in its reactions more closely than that of the cold-blooded animals used in other assays.

IN order to meet the above difficulties in digitalis therapy it was decided to em-

ploy an enteric coated digitalis tablet*, assayed by the cat method, in the treatment of a group of cardiac patients. The rationale behind this choice was based on the assumption that by administering such a digitalis preparation, deterioration, undesirable taste, possible gastric irritation, destruction by gastric juice, unreliability in posology, etc., could be minimized and more uniform clinical results obtained.

Selection of Patients

THE 33 patients in this series treated with digicitin were suffering from various heart diseases. In 26, cardiac enlargement—accompanying one or more conditions as congestive heart failure, auricular fibrillation, angina pectoris, syphilitic aortitis—was noted. The remaining subjects possessed cardiac anomalies where enlargement was unpronounced or unnoticed, and included auricular fibrillation, cor pulmonale, chronic emphysema and coronary disease. In some of the patients with cardiac enlargement, no evidence of limitation of reserve could be found and digicitin was given even when auricular fibrillation did not accompany the picture. This procedure was carried out with the aim of warding off impending heart failure.

Before therapy was instituted, the patients with congestive failure exhibited the common symptoms of: dyspnea, edema, ascites, cough, headache, indigestion, cyanosis and other evidences of circulatory stasis, all of which were noted in varying degrees of severity; those with auricular fibrillation showed palpitation, occasional dizziness, irregularity of the heart beat, pulse deficit, etc. Mitral stenosis, hypertension, coronary disease and thyrotoxicosis were among the conditions found associated with the auricular fibrillation. Of course, very often the same patient exhibited combinations of the various cardiac abnormalities.

* Enteric coated tablets of digicitin-Grant were used in this investigation and were supplied to the author through the courtesy of Grant Chemical Co. Inc., of New York, N. Y. Each tablet is equivalent to one cat unit in potency. The manufacturers state that the digitalis in this product is triple bioassayed by the cat method including assay after enteric coating.

Results

THE accompanying table presents the diagnosis, therapeutic drug measures and chief observations after digicitin administration. The term "*improvement*" is employed, for instance, when auricular fibrillation dominated the picture, to mean slowing of the ventricular rate, more regularity and steadiness in the action of the heart, disappearance of the pulse deficit, etc. Or, in the case of myocardial insufficiency, the term is used to mean abolition of dyspnea and disappearance of edema (although other drugs were sometimes simultaneously given to help relieve the latter condition), to indicate increased cardiac efficiency and diminution in the size of the heart, etc.

The dose of digicitin varied with the individual conditions. In general, 6 to 10 tablets (9 to 10 grains) were given in 24-48 hours for digitalization when auricular fibrillation complicated the picture, with 1 tablet as a maintenance dose. Almost spectacular results could be observed in these cases, improvement often becoming apparent in a matter of hours. Usually 1 or 2 were prescribed in the other types of cases with good results. Patients who at the first examination were observed to have enlarged hearts and slight tendencies to develop insufficiency and who were given digicitin, not only did not develop insufficiency but instead were able, after several months, to do without the drug. Noteworthy is the fact that nausea very seldom occurred and consequently this complication proved much less disturbing than when other forms of digitalis medication are administered. Furthermore, better cooperation on the part of the patient or his relatives was noted, probably because of the absence of any disagreeable taste of the enteric coated tablet and because of the ease of dose regulation, i.e., no measuring of minims, etc.

Summary and Conclusions

1. Thirty-three patients with various cardiac pathological conditions were treated with digitalis in the form of an enteric coated tablet, the contents of which had been bioassayed by the cat method. The results are tabulated together with diagnosis and dosage employed.
2. Therapy with digicitin was successful, in that it produced definite and rapid improvement in

Observations on Various Types of Cardiac Patients Treated with Digicotin

SUBJECT	DIAGNOSIS	DIGICOTIN TREATMENT	REMARKS
D.B.	Arteriosclerotic heart disease; hypertension; cardiac enlargement; diabetes	1 tablet daily; aminophyllin 3 gr. t.i.d.; diabetic management	General improvement
F.B.	Arteriosclerotic heart disease; hypertension; anginal syndrome; cardiac enlargement	1 tablet daily	Compensation maintained during 14 months of observation; general improvement
L.B.	Hypertension; arteriosclerosis; auricular paroxysmal fibrillation; cardiac enlargement	8 tablets in one dose at time of attack	Heart rate controlled
B.J.S.	Arteriosclerosis; hypertension; auricular fibrillation; cardiac enlargement	10 tablets in 48 hrs.; 1 daily	Compensation in 5 days. Deceased 4 months later (cerebral thrombosis)
M.P.	Arteriosclerosis; hypertension; auricular fibrillation; cardiac enlargement	8 tablets in 48 hrs.; 1 daily	Compensation and improvement
D.B.	Auricular fibrillation; cardiac dilatation and enlargement; active rheumatic	6 tablets in 24 hrs.; 1 daily	Remained compensated for 2 weeks; died 32 days later (pancarditis)
A.J.B.	Arteriosclerotic heart disease with coronary sclerosis; diabetes mellitus	2 tablets daily; diabetic regimen	General improvement; decompensation at 2-3 month intervals
M.D.	Arteriosclerosis; cardiac enlargement	1 tablet daily	General improvement after one week; edema abolished
W.W.	Hypertension; arteriosclerotic heart disease; auricular fibrillation; cardiac enlargement	8 tablets in 48 hrs.; 2 tablets daily for 1 week; 1 tablet daily	Compensation maintained
A.B.	Hyperthyroidism; hypertension; auricular fibrillation; cardiac enlargement	Quinidine 8 gr. daily for several days	Compensation and regular sinus rhythm
G.B.	Arteriosclerotic heart disease; cardiac enlargement; coronary disease with infarction	1 tablet daily for 6 weeks	Improvement and returned to work 3 months after beginning of treatment
F.B.	Arteriosclerosis; auricular fibrillation; cirrhosis of liver; cardiac enlargement	1 tablet daily	Cardiac improvement
D.Z.	Auricular fibrillation; rheumatic heart; cardiac enlargement	2 tablets digicotin daily for 5 days; 1 tablet daily; 9 grs. digitalis in first 24 hrs.	Heart rate reduced to 72 in 3 days; normal rhythm in 30 days
T.B.	Arteriosclerotic heart disease; auricular fibrillation; cardiac enlargement	8 tablets in 48 hrs.; 1 tablet b.i.d.	Compensation in 10 days; diuresis; deceased 6 months later
A.J.	Cor pulmonale with moderate failure; chronic bronchitis; emphysema	6 tablets in 24 hrs.; 2 tablets b.i.d. for 5 days; 1 tablet daily for 2 months	Compensation and general improvement
W.N.	Rheumatic; auricular fibrillation	10 tablets in 48 hrs.; 1 tablet daily	Compensation and general improvement
L.W.	Hypertension; cardiac enlargement; acute failure	8 tablets in 8 hrs.; 1 tablet daily for 3 weeks	Compensation after 48 hrs. and improvement
P.N.	Auricular fibrillation; cardiac enlargement; rheumatic	8 tablets in 24 hrs.; 2 tablets daily for 5 days; 1 tablet daily	Compensation and improvement
B.L.	Auricular fibrillation; cardiac enlargement; rheumatic; mitral stenosis	8 tablets in 24 hrs.; 1 tablet daily	Compensation and improvement
F.N.	Arteriosclerotic heart disease; auricular fibrillation; acute coronary	2 tablets daily	Heart rate controlled in 48 hrs.; died 3 weeks later
L.P.	Syphilitic aortic insufficiency; cardiac enlargement	10 tablets in 48 hrs.; 1 tablet daily	Compensation after 5 days; general improvement
T.P.	Hypertension; arteriosclerosis; auricular fibrillation; cardiac enlargement	6 tablets in 48 hrs.; 2 tablets daily for 4 days; 1 tablet daily	Heart rate slowed to 79 and general improvement

SUBJECT	DIAGNOSIS	DIGICOTIN TREATMENT	REMARKS
A.N.	Hypertension; cardiac enlargement; coronary heart disease.	1 tablet daily	General improvement
M.O.	Hypertension; auricular fibrillation; cardiac enlargement	6 tablets in 48 hrs.; 1 tablet daily	Heart rate reduced to 78 and general improvement
A.G.	Hypertension; arteriosclerosis; cardiac enlargement	10 tablets in 48 hrs.; 1 tablet daily diuretic	General improvement
A.S.	Arteriosclerosis; cardiac enlargement; coronary occlusion; paroxysmal fibrillation; acute failure	8 tablets in 24 hrs.; 1 tablet daily; Also 6 grs. quinidine and 9 grs. aminophyllin daily	Compensation in 48 hrs.; patient returned to work in 2 months.
W.N.	Arteriosclerotic heart disease; paroxysmal fibrillation; coronary occlusion; cardiac enlargement	1 tablet daily	Improved and returned to work in 2 months; one year still compensated
P.A.	Rheumatic; auricular fibrillation; cardiac enlargement; mitral and aortic stenosis	6 tablets in 24 hrs.; 1 tablet daily	Died 90 days later
W.A.N.	Rheumatic; auricular fibrillation; mitral insufficiency	8 tablets in 48 hrs.; 1 tablet daily	General improvement and compensation
W.F.L.	Rheumatic; auricular fibrillation; mitral insufficiency	10 tablets in 48 hrs.; 1 tablet daily	General improvement and compensation
F.P.	Aortic aneurysm; aortic insufficiency; enlargement	12 tablets in 48 hrs.; 2 tablets daily for 1 week; 1 tablet daily	Compensation and general improvement; returned to work in 60 days
J.C.W.	Syphilitic aortitis; aortic aneurysm	4 tablets daily for 2 days; 2 tablets for 1 week; 1 tablet daily	General improvement
H.L.	Arteriosclerosis; aortic aneurysm; auricular fibrillation; cardiac enlargement; acute insufficiency	10 tablets in 48 hrs.; 1 tablet daily	Heart rate reduced to 72; general improvement

heart failure and in the clinical picture of auricular fibrillation. It was administered to patients showing cardiac enlargement without insufficiency or fibrillation. Diminution in the size of the heart resulted and it is believed that cardiac enlargement warrants the administration of digicotin to help prevent impending failure.

3. Electrocardiograms showed the effect of digicotin treatment.

4. The problem of unpalatability and inconvenience in measuring dosage of other forms of digitalis is eliminated by the administration of digi-

cotin, thus securing full cooperation on the part of the patient.

5. Gastric irritation and the feeling of nausea occurred with lessened frequency and severity on a therapeutic regimen with digicotin tablets than with previously used digitalis preparations.

6. It is to be particularly noted that the enteric coated tablet of digitalis assayed by the cat method for standardizing dosage, as used in the present series of patients, affords a dependable, potent and convenient method of administering digitalis therapy in readily controlled dosage.

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30 NORTH MICHIGAN BOULEVARD

Banana Diet Assured to Celiac Sufferers

THE United Fruit Company announces that it has made provisions so that all children suffering from celiac disease, a nutritional disturbance of late infancy and

early childhood for which a diet of bananas is the indicated therapy, will receive priority for the necessary supply of bananas, despite the present shortage of bananas brought about by the U-boat activity in the Caribbean.

CLINICAL NOTES

Spontaneous Rupture of the Uterus

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RUPTURE of the uterus, either spontaneous or traumatic, is one of the most serious problems which may confront an obstetrician. Fortunately, it does not happen often, but when it does, it calls for prompt recognition and action.

Traumatic rupture occurring in the course of labor is perhaps not so difficult to recognize as spontaneous rupture occurring earlier in pregnancy, often without any seeming producing cause.

Before presenting a case history of such a spontaneous rupture, it may be well to review briefly what little has been published on this subject.

Medical literature contains case histories of spontaneous rupture occurring at all times throughout pregnancy, some as early as the third or fourth month, and others in the latter months. The etiology, if left to the pathologist, ends in a discussion of elastic fibers, scar tissue, and hyalin degeneration. Others will wish to bring in overdistention of an already weakened uterine wall, faulty repair following the first cesarean, invasion of chorionic elements into the old scar, and fatty degeneration. In the case history here reported, the tear was through the site of the old scar, and the pathological report was as follows: "Placenta shows numerous chorionic villi, decidual cells and blood clot. Staining less distinct than usual, indicating degeneration of uterus. Shows hypertrophy of muscular elements, probably degenerative changes. One area shows marked increase in connective tissue."

Apparently many elements enter into this problem, and the exact etiology is unknown. Diagnosis depends upon alert-

ness in following up subsequent pregnancies, particularly in cases where a primary cesarean was done. As there are some cases of spontaneous rupture where no previous cesarean has been done, the possibility must always be in the mind of the obstetrician. Apparently it is more likely to occur in the latter months of pregnancy and, where there are any suspicious symptoms, it must be carefully watched for. Statistics showing its frequency are most unreliable; the nearest figure that one arrives at is that about 1 per cent of all pregnancies following a primary cesarean section may result in spontaneous ruptures. Much higher figures are reported in some cases. The prognosis is always grave, it being practically 100 per cent fatal for the baby and with from 35 to 100 per cent maternal mortality, reported in different series of cases. The average would seem to be about 50 per cent maternal mortality.

Unoperated cases are usually fatal, and therefore the early recognition and immediate performance of a hysterectomy seems to be the treatment of choice. Occasionally cases have been reported where it was possible to repair the uterine tear. There is a distinction made between a complete tear and an incomplete tear, a complete tear involving the peritoneum as well as the musculature of the uterus.

The case reported here is that of a complete uterine tear occurring spontaneously in a para II, whose first baby had been delivered by a classical cesarean section some seven years previously. The first section was done because of toxemia of pregnancy with eclampsia, in a patient whose measurements showed a generally contracted pelvis.

Case History

On February 28, 1935, a white primipara, aged 29, was admitted to the Huntington Hospital. There

From the Huntington Hospital.

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was no past history except whooping cough in childhood. She had vomited continually throughout her pregnancy, had a 3 plus albuminuria and a blood pressure of 178/118. Because of her toxic condition, it was decided to do an immediate caesarean section, and she was sectioned without incident (classical caesarean section). Her recovery following the operation was seriously impeded by intestinal atonia and a paralytic ileus which she developed. Her abdomen had become so distended by the third day following operation that she was x-rayed, and the flat plate showed a complete paralytic ileus. She was worked on for two more days before vomiting stopped and some tone returned to the colon. Following this, she made an uneventful recovery.

History of toxemia throughout pregnancy, loss of weight, inability to keep food down, high blood pressure, and albuminuria.

Six years later she reported to the office, pregnant. The course of her pregnancy the second time was complicated by a toxemia with loss of weight and vomiting, but it was not so severe as that throughout the first pregnancy. It was intended that she be sectioned about two weeks before the baby was due. Four weeks before the baby was due, the doctor was called on Sunday afternoon, March 22, 1942, and the patient related the following story:

She had had a sudden sharp pain in the left lower quadrant and had felt something tear, following which she became nauseated, vomited, and the pain became less.

Examination showed a blood pressure of 142/96, a pulse of 78, a temperature of 98.6, and respirations of 16.

She was removed to the hospital immediately. A flat plate of the abdomen showed the fetus outside of the uterus, on the left side. She was then transferred to the table and immediately opened up. At the start of the operation her temperature was 98.6, pulse 82, and respirations 16.

Upon opening the abdomen, it was found to be completely filled with blood. When this was removed by suction, the baby was found in the abdominal cavity, dead; a large rent about 8 inches long extended from just below the fundus of the uterus downward and outward to the left flank. The bleeding was controlled and an immediate subtotal hysterectomy performed. A transfusion of plasma was given

on the table during the course of the operation. The pulse went suddenly bad, and the patient went into shock. The operation was finished as quickly as possible and the patient returned to her room. At that time she had a pulse of 140, thready and weak, and respirations of 40.

She responded well to nursing care, and by the third day her temperature, which had never risen above 102.8, was down to 99.6 and her pulse down to 90. Her only difficulty was the vomiting, which was continuous—so much so that on the third day a Wangensteen was passed. She was receiving about 3000 cc. of 5 per cent glucose over every twenty-four hour period, and nothing by mouth.

On the fourth day postoperative, she was unable to void; she was very restless and fretful, but her abdomen, which had been very hard, had softened up. Nothing, however, passed per rectum, not even gas. The Harris drip was not helpful. Restlessness was controlled by morphine and pantothen, and prostigmin was used.

On the fifth day, fluids passed in through the tube were retained for periods of time, and then when the Wangensteen was opened, she vomited. There was a slight temperature rise, which continued on the sixth day. At about this time, two drams of Fleet's phospho-soda were introduced through the Wangensteen, q. 4 h. About four hours later she passed some gas per rectum, but it was not until the seventh day postoperative that any return was gotten from enemas, and from then on enemas produced a large amount of flatus, with dark brown fluid and a moderate amount of formed feces, and she retained things by mouth. The Wangensteen was withdrawn, and the patient made an uneventful recovery, being discharged on April 10.

The postoperative complications included paralytic ileus, excessive vomiting, hemorrhoids which were very troublesome, and at times a rather distressing cough with expectoration of a thick mucus.

Her blood pressure fell to normal right after the cesarean section, and her urine clearup, going from a 3 plus to a faint trace of albumin on the eighth day.

The pathological report on the uterus was that the uterine wall stained less distinctly at the place of rupture, and showed degenerative changes of the muscular, elastic and connective tissues.



How to Protect Yourself Against Gas

I. WAR gases stay close to the ground, for they are heavier than air. To get out of a gassed area, simply walk against the wind or go upstairs.

II. Gas is irritating and annoying to the eyes, nose, lungs, or to the skin, but it is usually harmless if you do not become panicky but promptly leave the gas area and cleanse yourself. A soldier must put on a mask where it is necessary to remain in the contaminated area, but a civilian can go up on the second or third floor and literally ignore it if the windows are kept closed.

III. If the gas should get on your skin, you can prevent it from doing much harm by sponging it off as quickly as possible with a piece of clothing, such as a handkerchief, and applying some neutralizing

substance, followed by a thorough bath, preferably a shower, with common laundry soap and water.

IV. If you are indoors, stay there with doors and windows closed, and go up to the second or third story. Stay out of basements. Turn off the air conditioning, and stop up fireplaces and any other large openings.

V. Some gases are spread as oily droplets which blister and burn the skin and eyes. If you are outside when gas is used do not look up. Tear off a piece of clothing or use a handkerchief to blot any drops of liquid from your skin and throw the contaminated cloth away. Blot: do not rub, as rubbing will spread the liquid. Then go home, if it is nearby, or to the nearest place where you can wash immediately with soap and water.

C A N C E R

Cancer

AS A PUBLIC HEALTH PROBLEM

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IN the oldest literature of India and Persia, scrawled in hieroglyphics upon the walls in the tombs of Egypt and in the tomes of the ancient Greeks can be found mention of the disease that crawls through the flesh like a crab—cancer. This disease, therefore, has been known for more than 3,000 years. Presumably some ancient Greek gave cancer its name. The terms "cancer" meaning benign tumor, and "carcinoma" meaning malignant tumor were first used by Hippocrates.¹

The ancients had numerous theories regarding both the cause and treatment of cancer. It was believed by some that the disease was contagious or occurred as a result of chronic inflammation; others thought that it developed from an excess of mineral salt in the blood seeking an outlet. A prominent Roman of the first century described the healing properties of cabbage. Others advocated the use of internal therapy, bloodletting, arsenic internally and for open cancers, plasters.

A new interest developed in cancer during the eighteenth century due to the tireless efforts and critical mind of John Hunter. He differentiated the various types of tumors, observed their method of spread and was familiar with their phenomena of metastases. Hunter's studies prompted the formation (1802) of a "Society for Investigating the Nature and Cure of Cancer."²

Little was known about the actual nature of cancer until 1828, some time after the development of the modern type of microscope. At this time Johannes Muel-

ler, a German physiologist, first described the structure of cancer, a mass of cells closely resembling the tissues from which they arose. Ten years later, Mueller published the first extensive microscopical study of diseased tissues and established the role of the cell in tumors.³

From this time on, efforts were intensified to find the cause of cancer and to develop a successful method of treatment. Paper after paper dealt with the subject until it was finally described in all its types. However, this was only a first step in a great battle; diagnosis could now be made and whatever treatment was available applied. There was still much mystery surrounding the disease, and effective treatment was yet to be devised.

SLOWLY, inappreciably at first, then faster and faster, treatment was evolved: surgery, x-ray and radium. The resources of physics were applied to medicine until at last there was hope for the man or woman who had cancer, where there had been no hope before.

Paradoxically with the advancing efficiency of the physician in the diagnosis and treatment of cancer, its death rate grew; grew from 63 deaths per hundred thousand in 1900 to 83 deaths in 1920, to 117 deaths over the entire nation in 1939.⁴ In New York State alone, from a rate of 67 in 1900 it grew to a rate of 108 in 1920, and by 1940 it had jumped to 151.

What were the reasons for this alarming increase in cancer deaths? Why, if physicians knew more concerning the disease, if they were able to diagnose it more accurately, if they were able to treat

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it more efficiently, did they permit the death rate to reach such proportions?

The answer lies precisely there. The cancer death rate was increasing because physicians were becoming more efficient and because their diagnoses were more accurate. While the number of deaths attributable to cancer had increased, so had the population of this country and a higher proportion was concentrated in the ages where cancer was most prevalent.

Cancer most frequently attacks those past 35 years. In 1901, the average individual had a life expectancy of 49 years. Today, that same person may reasonably expect to live 63 years; more than 14 years of life added in a single generation.⁵

INCREASE in life span is due chiefly to the reduction in the mortality of early life resulting from the decrease in deaths from digestive disorders of childhood and the contagious diseases. Through these advances a far larger proportion of human beings reach the age where cancer begins to strike.

An example of this may be observed in the comparative death rates of some of the New England States which have high death rates from cancer, the average rate being much higher than that of some of the younger western states. However, when the mortality tables are arranged according to age groups, it is found that between the ages of 40 and 45, or 45 and 50, the rate is about the same all over the country.⁶

Even so, increased life expectancy is only part of the story. As physicians become more skilled in diagnosis, the more surgical operations that are performed and the more autopsies that are made, the greater the number of cancer cases that are recognized and reported. This is the explanation offered for the high cancer death rates in some of the smaller and more advanced European countries such as Switzerland, Holland and Denmark.⁷

IN Switzerland, more than 90 per cent of those dying from disease have postmortem examinations; frequently an unsuspected cancer is found. In the United

States, an estimated two per cent of persons dying from disease have a postmortem examination, although this figure may be somewhat higher. It is not improbable that when the opportunities for postmortem examinations are increased in this country, there will be at least a minor increase in the cancer death rate which otherwise could not have been interpreted.⁸

Thus an apparent contradiction is explained. The long range trend of cancer appears to be upward, despite the untiring efforts of medical science. It is believed that a portion of the increase in cancer is probably real.⁹ However, the life span of our people has increased and the American physician is more efficient in his recognition and treatment of the disease.

But there still remains the problem of mobilizing all weapons against this dread scourge of mankind, and of preventing needless deaths. Many of the larger municipalities have an effective educational program and adequate equipment for diagnosis and treatment. In the smaller communities, hampered as they are by lack of funds and facilities, the war against cancer is necessarily limited.

LEADERS in the cancer control program, however, report progress. Today, there are more than 250 cancer centers throughout the United States which meet the recognized standards of equipment and personnel. Moreover, private facilities for the treatment of cancer are increasing rapidly. It is encouraging to learn that the American College of Surgeons has the names of 36,087 living cancer patients without recognizable evidence of the disease for a minimum period of five years following the last treatment.¹⁰

Nassau County has had an active anti-cancer program for more than 13 years. Participating agencies include the Nassau County Cancer Committee; the Nassau County Medical Society; Meadowbrook Hospital, a county-owned and operated general hospital, the Nassau County Department of Health and certain voluntary nursing agencies. It is believed that this cooperation of official and non-official

health organizations is unique; therefore, it will be discussed in some detail.

The Nassau County Cancer Committee was organized in 1928, functioning at first as a sub-committee of the New York City Cancer Committee. From the beginning the Committee realized that before conducting a campaign of public education its first function should be to encourage local physicians to provide themselves with facilities and skills for the diagnosis and treatment of cancer and to raise the general level of knowledge in the medical, dental and nursing professions.

The Committee worked, worked hard for four years, offering postgraduate facilities to the professions.

IN 1932, the City of New York closed the doors of its municipal cancer-treating hospitals to non-residents of the city. The move was necessary, but to the people of Nassau County who needed help, the act was a severe blow as no special facilities were available in their home county for the treatment of cancer.

Diagnosis and treatment facilities were essential; there had to be prompt aid for those suffering, and the Nassau County Cancer Committee was faced with the problem of providing these facilities, for putting their theories into practice.

Ten years previously, the Nassau County Medical Society had advanced the need for a county hospital and by 1932, it was beginning to materialize. But it was not yet ready nor was necessary equipment available.

AT this point the Nassau County Sanatorium came to the assistance of the Cancer Committee. Through the cooperation of the superintendent and the board of managers, the entire floor of one building was set aside for the use of a "tumor clinic." This act involved a real sacrifice by the sanatorium authorities as the space was actually needed for the treatment of tuberculosis patients, and the changes necessary for the care of a different type of patient added to the administrative problems.

That was a start, but the diagnosis and

treatment of cancer required more. An x-ray machine was purchased by the Board of Managers of Meadowbrook Hospital and temporarily installed at the sanatorium. Radium was also required, a small quantity, equal to about one-third of an aspirin tablet. The price was seven thousand dollars, rather costly for the Committee with its limited funds. Money for the purchase of the radium came through private subscription, almost immediately.

Even with hospital beds, x-ray and radium, Nassau County was not prepared to conduct a total war against cancer. A trained consultant was lacking, as well as a staff trained and experienced in the newer methods of attacking the cancer scourge. This time assistance was forthcoming from Memorial Hospital in New York City. The late Dr. Burton J. Lee, then Clinical Director at Memorial, gave liberally of time to the Committee and, following his recommendation, a medical consultant and director of the Tumor Clinic was selected.¹¹

Meadowbrook Hospital was completed in 1937; clinical activities were transferred there and the work was augmented and improved. Coincident with the transfer, the Tumor Clinic was fully approved by the American College of Surgeons.

IN order to prepare the physician for the cancer patient a weekly tumor conference had been inaugurated in 1933. These weekly conferences were continued through the succeeding years and have been attended by an average of 40 private practitioners of medicine. These conferences have offered an opportunity for group study and discussion of the intricate problems involved in the diagnosis and treatment of tumor growths.

The Nassau County Cancer Committee has continued and expanded its educational program as well as its support of the Tumor Clinic. Because of the necessity of having someone go into patients' homes for follow-up of cases, the Committee added a public health nurse to its staff in 1933. A professional health educator was employed in 1939.

Nassau County adopted a new charter in 1936, including provision for a county health department which came into being in 1938 to serve a population of over 400,000. This single full-time health authority replaced the previously existing 68 part-time health departments. One of the first steps taken by the health department was to district the county for generalized nursing service to be rendered by its Division of Public Health Nursing. Personnel of this division now totals 35 public health nurses. In due time, a public health nursing council came into existence which brought together all agencies actively engaged in public health nursing.

MANY problems, however, continued to exist. There was an urgent need to learn the answers to numerous questions if further progress was to be made in the campaign against cancer. Valuable data existed in New York State, as in the nation, but no method had been devised for collecting it.

Then the 1939 session of the New York State Legislature provided a valuable instrument for the collection of these data. A law was enacted which required the reporting of "cancers and other malignant tumors," effective January 1, 1940. The law was enacted in accordance with the recommendations of the Legislative Cancer Survey Commission in which the medical profession was represented by Dr. James Ewing, Dr. Edward S. Godfrey, Jr., and Dr. Floyd S. Winslow.¹²

In its report the Commission had stressed the need for making use of the experience of all physicians who diagnose, treat or care for cancer patients in gathering data concerning the disease. It was the opinion of the Commission that complete and adequate reporting would provide important information regarding the cancer situation which otherwise could not be obtained and that important information could be secured on the following pertinent points:¹³

1. How much real increase in cancer is occurring? How accurate are mortality statistics? How much cancer is there in the community?
2. Is early diagnosis improving? To what extent is the cancer educational program proving effective

in this respect? Is early diagnosis improving more in areas where there is a great deal of cancer education?

3. Is cancer equally prevalent among the different social and economic segments of our population? Is it true, for example, that people of the lower economic grades have more than twice as much cancer of the skin, lip, mouth, larynx and stomach as do people in the higher income classes? If this is true (there is evidence from mortality statistics that it is), what is the explanation?

These, of course, are only a few of the questions to be answered. They are a few which illustrate the importance of cancer reporting, the why of it.

THE law requires physicians to report any case considered to be a form of malignant tumor, whether based on x-ray or pathological examination or on purely clinical evidence. Hospitals are also required to report cases, although if the patient is in the hospital when the diagnosis is made, either the hospital or attending physician may submit the report.

The process of reporting is a simple one. It involves filling out a card so designed as to give a maximum of information with a minimum of effort. The physician or hospital reports the case on Form C.C.1 (Figure 1) which is forwarded to the State Department of Health after office record has been made on Form C.C.10 (Figure 2). These records, of course, are confidential.

During the year 1940, the Nassau County Department of Health received a total of 1,133 reports of cancer among county residents; the rate was 278.5 per 100,000 population, or approximately 3 cases for each thousand residents. Ninety-four and seven-tenths per cent of all cases were in persons of 35 years and over. The youngest patient was a boy of 2 years; the oldest a man of 98 years.

There was a predominance of cases among females. For both sexes, cancer of the digestive organs was reported most often; breast cancer was most frequent in females and cancer of the uterus was second in importance. Skin cancer was twice as frequent among males as among females, while cancer of the mouth and adjoining tissues occurred in the ratio of 11 cases among men to one case among women. The time interval between the onset of the first symptoms and the first

visit to a physician varied from a low of 0.7 years in carcinoma of the uterus to a high of 4.2 years in carcinoma of the digestive organs.

SEVENTY-TWO and nine-tenths per cent of all case reports were accompanied by data from approved pathological laboratories regarding the microscopic character of the tissue.¹⁴

The above represents a few of the conclusions drawn from the tabulation of reports received for Nassau County residents during 1940. The accumulation of such reports over succeeding years will supply the answers to many questions raised by the Legislative Cancer Survey Commission and by others concerned with the cancer control problem.

The enactment of the cancer reporting law thereby gave impetus to a coordination of activities since the increase in known cases would require additional nursing service. A plan was developed to integrate the nursing care of such patients in all existing nursing services. This plan included intensive theoretical instruction, practical experience in the Tumor Clinic, and the gradual transfer of the case load to the nursing division of the county health department.

The medical consultant of the Tumor Clinic assumed responsibility for a series of 19 lectures to nursing personnel. Six lectures covered the general philosophy of cancer treatment, laboratory diagnosis, and the use of radium and x-ray in cancer therapy. Nine lectures dealt with cancer symptoms, methods of clinical examination and diagnosis, biopsies, indications for surgery or x-ray and the problems of after-care and follow-up of patients with carcinoma of special sites. The last four lectures were on the general topic "Cancer and the Community." The practical experience program for each nurse included eight days of planned and supervised observation and practice in the Tumor Clinic and Meadowbrook Hospital.¹⁵

Gradual transfer of the case load to the generalized service of the nursing division of the health department was effected by use of a case summary sheet. This transfer was made, however, only

after each nurse had conferred with the Cancer Committee nurse who served in the capacity of a consultant in cancer nursing.

CANCER nursing thus became a part of the basic family work. Under the new program the services of the nurse to give instruction or demonstrate nursing care are automatically offered to the physician who reports a case. As time has progressed the number of physicians giving blanket permission to visit cases has materially increased. Although the transfer of the case load was not completed until late 1940, a total of 2,445 cancer nursing visits was made by all agencies.

The services a public health nurse renders in a cancer control program are conditioned to some extent by the facilities available in the community. She can do follow-up work, arrange for visits to the Tumor Clinic or for hospitalization, give bedside care or interpret the physician's orders to the patient or family. In her capacity as health educator she gives advice that will direct a person to a physician for diagnosis and treatment. A community such as Nassau differs from a distinctively rural community in the accessibility of the patient to treatment and diagnosis rather than in the opportunity of teaching prevention and rendering nursing service.

Thus in Nassau County cancer was recognized as a public health problem many years before this responsibility was assumed by the State Department of Health. Through years of cooperative effort on the part of physicians, dentists, and their professional organizations with an active local cancer committee the groundwork was laid for what is now considered a truly effective cancer control program.

Summary and Conclusions

1. Records attest the occurrence of cancer for more than 3,000 years. The position of cancer as a cause of death has changed materially in the past 30 years. In 1911, it ranked seventh; in 1939, it was second only to heart disease. Although cancer occurs throughout the life cycle, it

TOWN
VILLAGE
CITY

COUNTY

DIST. NO.

(LEGAL RESIDENCE OF PATIENT)		PRESENT AGE:	YEAR OF or, BIRTH:			
PATIENT'S NAME: <small>(PLEASE PRINT)</small>						
PATIENT'S LEGAL ADDRESS:						
SEX:	COLOR:					
USUAL OCCUPATION:	(IF INSTITUTION INMATE, GIVE PREVIOUS LEGAL ADDRESS)					
Data First Symptom of This Tumor	Date of First Visit for This Tumor to Physician Reporting:	Was Prior Visit Made to Another Physician for This Tumor?				
CLINICAL DIAGNOSIS:						
PATH. DIAGNOSIS: PRIMARY SITE (Tissue of Origin):						
NAME OF PATH. LABORATORY:						
STAGE OF DISEASE	When First Diagnosed: Now:	Early Local <input type="checkbox"/>	Advanced Local <input type="checkbox"/>	Regional Nodes Involved <input type="checkbox"/>	Distant Metastasis <input type="checkbox"/>	Recurrent <input type="checkbox"/>
Hospital <input type="checkbox"/> REPORTED BY: Physician <input type="checkbox"/>	(NAME)		Address or Institution:			
DATE OF THIS REPORT:	If Now Hospitalized, Name of Hospital or Institution:		Tumor Clinic Patient <input type="checkbox"/>			
EDWARD S. GODFREY, JR., M.D. Commissioner		MALIGNANT NEOPLASM CONFIDENTIAL REPORT New York State Department of Health DIVISION OF CANCER CONTROL			Check here if you wish more report cards <input type="checkbox"/>	
Form C. C. I 4-17-41-25M-17-7418						

is essentially a disease of middle adult life and old age.

2. Legislation requiring the reporting of cases is providing basic information regarding the disease in New York State. It will aid in determining the prevalence of the disease and among what groups; whether or not it is increasing and if progress is being made in reducing the delay in seeking treatment and in increas-

ing the number of cases seen at an early stage.

3. The collection of cancer data from New York, excluding New York City, provides information from a small segment of this nation's inhabitants. Enactment of similar legislation by all states would provide a true picture of the cancer problem as it exists in the United States.

—Concluded on page 403

CTV	COUNTY	YR./B.	SEX	COL.	MAR. ST.	DATE DIED
NAME ADDRESS						
PHYSICIAN REP. LAB REP.	OCCUP.	1ST SYMPT.	1ST VISIT	OTH. MD. <input type="checkbox"/>		
	DIAG.			LAB. NO <input type="checkbox"/>		
	STAGE	HOSP. NO <input type="checkbox"/> DR.		CC 1 REC'D		
	1ST SYMPT.	1ST VISIT	DIAG.	LAB. NO <input type="checkbox"/>		
	STAGE	HOSP. NO <input type="checkbox"/> DR.		CC 1 REC'D		
	LAB.	DATE DR.				
	DIAG.					
	LAB.	DATE DR.				
	DIAG.					
	HOSP.	DATE 1ST SYMPT.	LAB.	NO <input type="checkbox"/>		
DIAG.			STAGE			
HOSP.	DATE 1ST SYMPT.	LAB.	NO <input type="checkbox"/>			
DIAG.			STAGE			
PLACE OF DEATH						
CAUSE						
ATTEND. PHYSIC.						

Form C. C. 10. 1-12-40-20,000 (17-5529) CANCER—DISTRICT RECORD N. Y. STATE DEPARTMENT OF HEALTH

SURVIVALS FOR FIVE TO NINE YEARS OF PATIENTS TREATED FOR CANCER IN THE HOSPITALS OF ROCHESTER, NEW YORK.

WE are continuing the follow-up system for patients treated in the Rochester Hospitals who have survived treatment for from six to nine years, previously reported, a total of 145 cases: 63 cases of Cancer of the Breast; 23 cases of

Reported at the Seventeenth Annual Meeting of the New York State Committee of the American Society for the Control of Cancer, held in Rochester December 9, 1941.

Former contributions in this series of articles were published in the MEDICAL TIMES as follows: July, 1932; 60:218. June, 1933; 61:179. March, 1934; 62:81. May, 1937; 65:233. May, 1938; 66:246. March, 1939; 67:125. May, 1940; 68:223. July, 1941; 69:307 and in the New York State Journal of Medicine: July, 1935; 55:731.

Cancer of the Gastro-intestinal tract; 11 cases of Cancer of the Male Genito-urinary tract; 4 cases of Cancer of the Ovary; 22 cases of Cancer of the Cervix of the

<i>Highland Hospital</i>	
1. Breast	Calihan
2. Breast	Fowler
3. Breast	Gibb
4. Ovary	Fowler
5. Penis	Calihan
6. Skin	Calihan
Uterus	
7. Cervix	Calihan
8. Cervix	Gibb

Table 1

	To Be Accounted For	Living	Dead	Lost
<i>Carcinoma of the Breast:</i>				
1937 Group (9 Years).....	10	14 (1)	0	0
1938 Group (8 Years).....	11	12 (3)	1 (4)	0
1939 Group (7 Years).....	22	18	4 (8)	0
1940 Group (6 Years).....	26	19 (12)	1 (13)	6
<i>Gastro-intestinal Tract:</i>				
1937 Group	2	2	0	0
1938 Group	5	4	0	1
1939 Group	8	11 (7)	0	0
1940 Group	6	6	0	0
<i>Genito-urinary Tract:</i>				
(Except Uterus and Ovary)				
1937 Group	3	2	0	1
1938 Group	3	4 (2)	0	0
1939 Group	6	5 (9)	0	1
1940 Group	2	2	0	0
<i>Ovary:</i>				
1938 Group	2	1	1 (5)	0
1940 Group	4	3	1 (9)	0
<i>Uterus:</i>				
<i>Cervix</i>				
1937 Group	6	6	0	0
1938 Group	3	2	0	1
1939 Group	9	9	0	0
1940 Group	8	5	0	3
<i>Fundus</i>				
1937 Group	1	1	0	0
1938 Group	10	10 (6)	0	0
1939 Group	2	2	0	0
1940 Group	10	9	0	1
<i>Miscellaneous Malignancies:</i>				
1937 Group	4	4	0	0
1938 Group	6	4	0	2
1939 Group	6	4 (10)	2 (11)	0
1940 Group	8	4	1 (4)	3

(1) Four cases lost in 1940 re-examined in 1941. (2) One case lost in 1940 re-examined in 1941. (3) Two cases added from Genesee Hospital. (4) Dead, cause unknown. (5) One case dead of pneumonia. (6) One patient operated in 1940 for second cancer (breast). (7) Three cases lost in 1940 re-examined in 1941. (8) One died of tuberculosis, three of cancer. (9) One died of scalding. (10) Thyroid mental deterioration. (11) Acanthoma of the larynx, died of cancer of the splenic flexure of colon; sarcoma of scrotum died of cancer of the prostate. (12) Two cases with recurrence. (13) Died of skeletal metastasis.

Uterus; 22 cases of Cancer of the Fundus of the Uterus. (Table I will give the details.)

Genesee Hospital

1. Breast	Dean
2. Breast	Pucci and Mitchell
3. Breast	Walker
4. Breast	Chapman
5. Salivary Gland	
Tumor	Sumner and Houck
6. Sarcoma	Cook
Uterus	Davis and Kober
7. Cervix	Chapman
8. Fundus	Davis
9. Fundus	

Rochester General Hospital

1. Bladder	Fischer
2. Breast	Staff
3. Breast	Prince
4. Breast	Prince
5. Breast	Prince
6. Breast	Prince
7. Breast	Lakeman
8. Breast	Wooden
9. Breast	Hutchens
10. Breast	D'Amanda
11. Ovary	D'Amanda
12. Sarcoma	Fitch
13. Skin	Staff
14. Skin	Potter

Park Avenue Hospital

1. Adamantinoma	
2. Breast	Harris
3. Breast	Sampson
4. Breast	Appelbaum
5. Breast	Sutter
6. Breast	Gage
7. Caroid body	
Tumor	Sampson
8. Salivary Gland	
Tumor	Gage
9. Uterus	
9. Cervix	Gage

Saint Mary's Hospital

1. Breast	Hartigan
2. Cecum	Simpson
3. Colon	Pfaff
4. Colon	Simpson
5. Ovary	Daniels
6. Rectum	Simpson
7. Uterus	
7. Fundus	Simpson
8. Fundus	Pfaff

Strong Memorial Hospital

1. Breast	Stabins
2. Breast	Morton
3. Breast	Pearse
4. Breast	Staff
5. Breast	W. J. M. Scott
6. Colon	T. B. Jones
7. Colon	Stabins
8. Ovary	Gynecological Service
9. Ovary	Gynecological Service
10. Rectum	T. B. Jones
11. Sarcoma	Staff
12. Sarcoma	Gynecological Service
13. Sigmoid	Staff
Uterus	
14. Cervix	Gynecological Service
15. Cervix	" "
16. Cervix	" "
17. Fundus	" "
18. Fundus	" "
19. Fundus (Chorioneplithelioma)	" "

Summary

Adamantinoma	1
Bladder	1
Breast	27
Carotid Body	1
Cecum	1
Colon	4
Ovary	5
Penis	1
Rectum	2
Salivary Gland Tumor	2
Sarcoma	4
Sigmoid	1
Skin	3
Uterus	14
Cervix	7
Fundus	7
	—
	14
	67

During the past year there have been eleven deaths among the five to nine year survivors. Six of those treated for cancer of the breast; one, in the seven year group, of tuberculosis; three, in the eight year group, of cancer; one, in the six year group, of skeletal metastasis; and one, in the eight year group, of unknown cause.

Two of those treated for cancer of the ovary: one, in the eight year group, of pneumonia; one, in the six year group, of scalding.

Three of those treated for miscellaneous malignancies: two, in the seven year group; one, treated for cancer of the larynx (acanthoma), died of cancer of the splenic flexure of the colon, and one, treated for sarcoma of the scrotum, died of cancer of the prostate. One, in the six year group, died of unknown cause.

Nineteen patients have been lost.

WE are adding this year sixty-seven additional cases of patients treated in 1936, living and without recurrence in 1941.

The histological material from these patients has been reviewed by a Committee composed of Dr. William B. Hawkins, Associate Professor of Pathology, Medical School, University of Rochester; Dr. Nicholas W. Popoff, Director of the Laboratories of Highland Hospital; and Dr. Walter S. Thomas, Director of the Monroe County Laboratories.

This brings the total number of cases that have survived for five years and more to 513.

CONTEMPORARY PROGRESS

NEUROLOGY

Alternating Tremor and Its Relation to Cortical Pathways

B. H. BALSER (*Archives of Neurology and Psychiatry*, 47:962, June, 1942) reports a case in which the patient had shown tremor and rigidity (paralysis agitans) of both hands, forearms and legs for twelve years before thrombosis of the right middle cerebral artery caused left hemiplegia. As the patient regained motor activity to a considerable extent during a three year period of observation the tremor did not recur but the rigidity remained the same. Death was due to cardiac disease, and a careful study of the brain and spinal cord was made postmortem. There was no history of encephalitis in this case and no primary specific lesion in the basal ganglia or the substantia nigra "to explain the presence of paralysis agitans." The question arises whether the cessation of tremor in this case was due to degeneration of some definite part of the brain; this question is of interest in relation to the neurosurgical treatment of severe paralysis agitans that does not respond satisfactorily to medical treatment. In 35 cases of post-encephalitic paralysis agitans studied pathologically and clinically, there was involvement of the pyramidal tract in 6 instances, but all these patients had persisting alternating tremors until the time of their death. In the case reported it was found that the pyramidal tract for the leg was "relatively intact," yet tremor disappeared from the leg as well as from the arm. Three-fifths of the pyramidal tract was destroyed, and this tract evidently has some relation to tremor, but other "pathways," all of which had their origins in or connections with the frontal lobe, were affected by degenerative changes; this includes the frontopontile system and part of the temporo-pontile system, the frontothalamic fibers to the anterior lateral thalamic nucleus, the

corticorubral and corticonigral fibers. These findings indicate that not only area 6 but the parapyramidal area in the frontal portion of the brain "is closely related to tremor;" thus in attempting to destroy all the fiber connections of the superior frontal convolution, "it is not sufficient" to eliminate area 6 only.

COMMENT

The obliteration of the tremor of paralysis agitans by a superimposed thrombosis of the middle cerebral artery is clinical observation moss-grown with medical age.

This clinical report bears out the surgical observation that the complete disappearance of tremor occurs only when there is removal of the cortex over a widespread extent.

H.R.M.

Moderate-Dosage Atropine Treatment of the Parkinson Syndrome

L. J. DOSHAY and T. R. FORD (*New York State Journal of Medicine*, 42:1060, June 1, 1942) report 112 cases of Parkinson syndrome treated with atropine in moderate dosage. Three doses daily are usually given at 8 A.M., 3 P.M. and 10 P.M. A $\frac{1}{2}$ per cent solution of atropine is employed; the initial dosage is 1 to 3 drops three times a day, depending on the patient's general condition; for "the average patient," 2 drops three times a day. The dosage is gradually increased, according to each patient's tolerance, up to 10 drops three times a day; each drop contains 1/20 grain of atropine; the optimal dose for each patient is determined by "a balance between the level of maximum response and that of evidence of annoying reactions from the drug." Dryness of the mouth and some blurring of vision are of common occurrence even with moderate doses of atropine, but are usually not disturbing to the patient; dryness of the mouth may be relieved by the use of

chewing gum and large amounts of water—especially by using one-half to a full glass of water with each dose of atropine. Most patients "achieve natural visual adaptation" as their tolerance for atropine increases. Other reactions are infrequent and not severe with moderate-dose atropine therapy. Of the 112 patients treated by this method, 29 patients (26 per cent) were much improved; and 43 patients (38.4 per cent) slightly improved. The clinical "impressions" of the effect of treatment in these cases were confirmed by ergographic records and by special clinical tests. For patients with marked excitement and tremor, hyoscine is combined with atropine; in some cases benzedrine sulfate may be used with atropine (about 5 per cent of the author's cases). From their results with the moderate-dose atropine therapy, the authors conclude that the results compare favorably with those of massive-dose atropine therapy and with those obtained with

the use of various preparations of belladonna root. These results are obtained without disturbing reactions. The authors consider that moderate-dose atropine therapy is the treatment of choice in all types of parkinsonism; only if a patient is refractory to atropine should "the more expensive, and apparently more toxic, proprietary belladonna root preparations" be used. Massive-dose atropine therapy, they believe, is "hardly justified at any time, in view of the violent reactions produced."

COMMENT

It is interesting to note the enthusiasm which greets virtually any medication of old or new use in the treatment of Parkinsonism. It has been the experience of this reviewer that the various members of the belladonna group are all effective at the early stage of their adoption, but that a tolerance for the drug is soon acquired. Often a change from one drug to another proves of value for a variable period.

H.R.M.

Head Injuries; A New Treatment for Postconcus-sional Headaches and Dizziness

J. Y. MALONE (*Journal of American Medical Association*, 119 : 861, July 11, 1942) reports the use of prostigmin in the treatment of headache and dizziness following head injury with concussion. This drug was used on the ground that concussion causes "altered vasomotor activity;" prostigmin is a vasodilator similar to physostigmine in its action, but "lacking many of the disadvantages" of the

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complete relief was ultimately obtained, except that one patient still shows recurrence if he takes excessive fluid. On the basis of the results obtained in these cases, the author advises that prostigmin be employed in all cases in which the postconvulsive syndrome is sufficiently severe to require treatment. As an adjunct to prostigmin, ammonium may be substituted for sodium salts, and fluid intake restricted, until a "force fluid test" fails to cause recurrence of symptoms. If there is little or no improvement after "a fair trial" of this therapy, "surgical intervention may be necessary."

COMMENT

This suggestion certainly deserves a thorough trial, for, following a genuine head injury, headache and vertigo prove distressing symptoms and up to the present time no therapy of real value has been offered.

H.R.M.

A Clinical Test for Reversible Headache

MICHAEL SCOTT (*Journal of Nervous and Mental Diseases*, 96:64, July, 1942) describes a test that he has employed to differentiate headache due to definite cranial or systemic disease from functional or "reversible" headache, such as that due to anxiety neurosis or malingering. Steady firm pressure with each thumb is made against each malar bone for ten seconds; if the patient states that his headache is relieved by this procedure, this indicates that it is "reversible," as in anxiety, hysteria, or malingering; headache due to a definite organic condition is not affected by this procedure. The malar bone was selected for this test, because of its "obvious psychological value," as being "near the headache," and also because the overlying tissues do not contain large branches of the carotid artery—the maxillary, temporal, auricular or occipital arteries, which may be distended in cases of migraine. Pressure on any one of these arteries might relieve a headache associated with distension of the artery, but pressure over the malar bone does not have this effect. If "malar pressure" relieves the headache which returns when the pressure is re-

leased, "there is no question as to the functional nature of the pain." But if this test has no definite effect on the headache it may be either functional or organic.

COMMENT

A method possibly of value in attempting to prove the suggestibility of the functionally disturbed individual. One of its inherent dangers is the failure to recognize that even organically disabled persons are suggestible—witness the disappearance of the toothache on visiting the dentist.

H.R.M.

The Brain in Sickle Cell Anemia

FREDERIC WERTHAM and associates at the Queens General Hospital, New York (*Archives of Neurology and Psychiatry*, 47:752, May, 1942), report a pathological study of the brain in 5 cases of sickle cell anemia; all the patients were Negroes; the diagnosis of sickle cell anemia was made before death in only one case, but in the other cases the diagnosis was definitely established postmortem by examination of the blood and organs. Neuropsychiatric symptoms of "wide variety" occur in sickle cell anemia, although in many clinical reports of the disease such symptoms are regarded as "merely incidental." In one of the patients in this series there was a history of psychotic episodes. On the basis of the findings in the 5 cases reported, the authors conclude that the essential neuro-pathological changes in sickle cell anemia are small necrotic and necrobiotic lesions "on a vascular basis" distributed diffusely through the brain, but with a predilection for the border between the cortex and the subcortical white matter. Other changes include hyperemia of blood vessels, hypertrophy and proliferation of endothelial and adventitial elements in the walls of small blood vessels, large vascular lesions of uncharacteristic type (found especially in 2 cases with associated hypertensive disease); small hemorrhages and extravasations; focal and diffuse changes in the nerve cells in cortical and subcortical gray matter. The spinal cord may show focal areas of demyelination. It was impossible to determine the role of the hemolytic crisis of sickle cell anemia in the causation of the neuro-pathologic lesions.

PHYSICAL THERAPY

Recent Changes in the Concept of the Treatment of Poliomyelitis

ARTHUR STEINDLER and his associates at the State University of Iowa (*Archives of Physical Therapy*, 23:325, June, 1942) conclude from their study of over 200 patients in the Iowa poliomyelitis epidemic of 1940-41 that infantile paralysis cannot be considered as a purely motor deficiency originating in the anterior horn cells; the motor deficiency apparently reaches "much higher" and blocks the use of the individual paralyzed muscles, leading to complex "substitutionary motions." Moreover not only the neuromotor system is involved, but bone atrophy and relaxation of ligaments and joints are "part and parcel of the complex picture of anterior poliomyelitis." It was found that many severe contractures occurred in muscles that had been kept in splints for some time. On the basis of their findings, the authors do not believe that splinting of the affected extremity in the early stage should be entirely abandoned; splints are still used as long as there is muscular tenderness and pain, but they are removed "at the earliest possible time." During the period of splinting, physical therapy is carried out daily for thirty minutes, including hot wet packs, gradual passive motion through a range that does not cause pain, and gentle massage. For the rest of the time the patient remains in splints on the orthopedic frame. When the patient is discharged from the hospital, the parents or attendants are instructed in the methods of physical therapy to be employed. In this way the paralyzed muscle is protected against fatigue, but contractures are prevented by the earlier institution of active and passive motion. The Kenny method of using hot wet packs is of undoubted value in relieving the pain and tenderness of the early stage of poliomyelitis and making possible the early institution of passive motion. Since relaxation of ligaments and joints is considered a part of the picture of infantile paralysis, a certain amount of support must be given the affected extremity, "quite apart

from the muscular weakness," when the "static function" is resumed; thus there is definite indication for the use of supporting apparatus in infantile paralysis cases when walking or standing is resumed. The selective muscle training, which is also a part of the Kenny technique, has been found to be of definite value; this is carried out by showing the patient the action of each individual muscle by means of passive motion and then instructing the patient in carrying out the same motion actively.

COMMENT

This abstract reveals again the conservatism and broadness of thought of this author. The Kenny treatment has opened the eyes of too few orthopedic surgeons who are bound by their early ideas. It is just such a man as the writer who can accommodate the two divergent schools of thought to each other and pick the middle road which should be the best. As a surgeon the writer gives much attention to ligaments and joints but he still gives due credit to the selective muscle training.

N.E.T.

Injuries to Muscles

W. H. NORTHWAY (*Archives of Physical Therapy*, 23:420, July, 1942) states that muscle injury may be due to "a direct blow from an external force," or to "a sudden stretching force from within." The first type of injury occurs most frequently in such games as football and basketball, the second type in tennis and other sports, horseback riding and various occupations; the latter type of injury is intensified by a state of fatigue in the muscle. Certain muscle injuries involving rupture with retraction of fibers or hemorrhage and clot formation in the muscle substance require surgical treatment. Physical therapy is the chief indication for less severe injuries and also for post-operative treatment in the surgical cases. In the early treatment of muscle injuries, most successful if applied within six hours after injury, rest, compression by a firm bandage, and the application of cold compresses are indicated; this is continued un-

til extravasation of fluid ceases. Therapy should then aim to bring about repair in the injured tissue as rapidly as possible; for this heat, massage and exercise are indicated, as all of these measures increase the blood flow through the tissues. Various methods of applying heat may be employed—hot compresses, a hot water bag, a hot bath, an electric heating pad, radiant heat or medical diathermy. A whirlpool bath is a very useful method of applying heat to an extremity; the temperature of the bath should be between 106 and 110° F. If radiant heat is employed, a luminous source gives a somewhat more penetrating heat than a non-luminous source; with either, the heating unit should be at a distance of about three feet from the area to be treated, regulated so as to be comfortable to the patient. Medical diathermy can be employed in office or hospital practice where "deep heat" is indicated. If a cable apparatus is used, the cable is wrapped around the area to be treated if the injury involves an extremity; for flat surfaces the cable is used to form a "pancake coil" or a disk electrode may be employed; the latter is especially valuable when the area is very sensitive. With either of these types of electrode, the diameter should be much larger than the injured area, as it has been found to be of definite advantage to have the energy distributed over a large area. The electric field technique may also be used for the treatment of muscle injuries. Massage is indicated after the application of heat; at first superficial stroking around the injured area is employed; later superficial stroking may be employed over the injured area and deep stroking around it; the latter should never be used over the injured area in the early stages. The massage should be carried out so that neither pain, discomfort, nor increase in swelling result.

COMMENT

The author neglects to give recognition to the most potent modality in physical therapy for the treatment of injured muscles. This is static electricity. The high voltage static current with its immediate decongestive effect removes from the body of the muscle any

extravasated serum and relieves acute muscle spasm. Cases of what is called "Charlie horse" are relieved almost immediately with the static current and swellings within the muscle are dissipated almost immediately with the static brush discharge.

Diathermy, of course, is effective in increasing circulation but frequently this increase in local circulation causes an increase in pain due to increased congestion. It is therefore necessary to use a decongesting modality following the diathermy or other forms of heat. Massage is a good attempt at this effect but the static current is many, many times better.

N.E.T.

Physical Therapy in the College Health Service

RICHARD KOVACS (*Journal-Lancet*, 62:264, July, 1942) has found that physical therapy in a college health service is most frequently employed in the treatment of acute injuries incident to college athletics. If the nature of the injury does not indicate complete immobilization, gentle massage to the periphery of the injured part may be employed immediately; elastic bandaging or strapping may be used to protect the part, but the application of heat and passive motion are also indicated. For the application of heat in the types of injury met with in a college service, heat lamps have "the greatest all around value," in the author's opinion; it is desirable to have lamps of various sizes that can be used according to the extent of the injury and the size of the area to be treated. Whirlpool baths are also of value as giving a combination of conductive heating and "gentle massage and cleansing effects." The use of diathermy is rarely necessary in the types of trauma treated in a college health service; but if diathermy is to be used the author considers that long wave diathermy is preferable for localized healing to the short wave. Other conditions that are treated in a college health service that are benefited by physical therapy include acute catarrhal conditions of the nasal sinuses, nose and throat and mild cases of rheumatic infection, for which radiant heat or diathermy is indicated after the medical diagnosis has been made. There is some doubt as to whether general ultraviolet irradiation is of value in the prevention and treatment of the common cold,

but this type of irradiation is of definite value in secondary anemia and "run-down conditions" due to overwork or lack of rest, and not to serious organic disturbances. Both local and general ultraviolet irradiation may also be of value in certain skin conditions that occur in young people of college age—such as acne, furunculosis, pityriasis rosea—and also in indolent ulcers. For the removal of skin blemishes, moles and warts, desiccation by the high frequency current is effective and safe; the technique of its use can be easily learned by the college physician. Carefully graded exercises systematically applied are indicated for the correction of various physical defects found among college students such as bad posture, round shoulders and flat feet.

COMMENT

The immediate use of physical therapy in the treatment of athletic injuries can not be too greatly stressed, and physical therapy is not just the use of one single kind of treatment, but a combination of the correct forms that are indicated by the different pathologies presented.

The treatment of hemorrhage in the knee joint is altogether different from that of an ordinary case of "water on the knee" and the diagnosis can be practically made by the effects of treatment. If the condition does not respond to physical therapy immediately, then it is safe to conclude that there is a hemorrhage and aspiration is indicated.

The author writes very truly when he encourages the use of long wave diathermy, as athletic injuries are usually in the soft parts and the greatest effect of this kind of diathermy is in these soft parts. Short wave diathermy, however, is useful in the sinuses and in nose and throat conditions and is particularly efficacious for the boils and carbuncles which are so prevalent among oarsmen.

Although not mentioned in this abstract, systematically graded exercises are of great use in treating young boys who are too enthusiastic and have a temporary strain of their cardiac muscle. Over-exercise frequently causes cardiac dilatation and there is no better treatment than graded exercises.

N.E.T.

An Improved "Walking Chair" and "Breeches Buoy Suspension" for Severely Handicapped Infantile Paralysis Patients

E. H. BETTMANN (*Archives of Physical Therapy*, 23:281, May, 1942) de-

scribes an improved walking chair for infantile paralysis patients in whom both lower extremities and part of the back muscles are involved and who quickly become tired in the usual walking chair. This new walking chair has three main parts: An adjustable head suspension; an adjustable "breeches buoy" for pelvic suspension; and a removable seat which can be adjusted for temporary rest periods. The "breeches buoy" is of similar pattern to that used for removing persons from stranded ships. It must be individually made and adjusted to each patient; it is attached to the walking chair by a large ring on each side; wires clipped to these rings run over "trolleys" attached to the upper side bars of the walker and are adjusted by means of pulleys on each side to give the desired pelvic suspension. If immobilization of one hip is necessary, the buoy is extended to the knee and reinforced with an outer bar; the thigh piece is opened and closed by laces. Before the breeches buoy is adjusted, a plaster spica is used for a trial period; the spica is extended to include the knee in cases where one hip and one knee must be immobilized for stability. The lateral ring supports of the walker are attached to the plaster cast by means of "incorporated ropes;" in this way the patient can be lifted and kept upright in order to study "the standing and walking possibilities" when the walker and breeches buoy suspension are employed. The head suspension is used if the breeches buoy does not give the patient sufficient support, and can often be discarded when the patient has learned to use his muscles. With this walker and breeches buoy even a badly handicapped patient can take daily standing and walking exercises.

COMMENT

The apparatus described in this abstract is a most ingenious one for performing what is called in physical therapy "assistive exercises." Modern workers in physical therapy have long ago discarded passive motion as a means of building up muscular strength and more attention has been paid to analyzing the mental, visual and physical cooperation of the patient. Assistive exercise does this and such a walking chair is the last word in offering such help to people whose leg muscles are involved.

N.E.T.

PUBLIC HEALTH, INDUSTRIAL MEDICINE AND SOCIAL HYGIENE

Reimmunization Against Diphtheria of Previously Immunized Children

V. K. VOLK and W. E. BUNNEY (*American Journal of Public Health*, 39: 700, July, 1942) report a study of 808 children who had been immunized against diphtheria one to twelve years previously; all were reimmunized, and some of these were followed up for as long as five years after reimmunization. Various methods had been used for the first immunization, but regardless of the method, a definitely progressive, though gradual, reduction in the antitoxin content of the blood was found to occur. Reimmunization with a single dose of fluid toxoid or alum-precipitated toxoid produced a satisfactory increase in the antitoxin content of the blood. These previously immunized children responded much more promptly to such a single dose of toxoid and with a greater increase in antitoxin content of the blood than children not previously immunized. The immunity was well maintained after the reimmunizing injection. The alum-precipitated toxoid was found to be somewhat more effective for reimmunization than fluid toxoid but its comparative effectiveness for primary immunization "is much more striking." There were no general allergic reactions to the reimmunizing injection and the percentage and severity of local reactions were not sufficient "to discourage reimmunization." On the basis of these findings the authors conclude that immunization of children against diphtheria in infancy, followed by reimmunization when they enter school, will maintain the antitoxin content of the blood "at a good average level." Widespread use of this procedure "should approach complete eradication of diphtheria."

Use of the Index Case in the Study of Tuberculosis in Williamson County, Tennessee

RUTH R. PUFFER and associates in the Tennessee Department of Health

(*American Journal of Public Health*, 39: 601, June, 1942) report a study of the incidence of tuberculosis in Williamson County, Tennessee, on the basis of the incidence in families of known cases of tuberculosis, the known case in each instance being "the index case" for the family. In white families, associates of fatal and sputum-positive cases of tuberculosis have been followed for 2,364.75 person-years, and the associates of other latent and manifest apical cases of tuberculosis have been followed for 7,122.0 person-years. In the first group there were 18 new cases of manifest tuberculosis, a case rate of 7.6 per 1000 person-years, and in the second group 17 new cases, a case rate of 2.4 per 1000 person-years. In colored families the case rate in associates of fatal and sputum-positive cases of tuberculosis was 20.5 per 1000 person-years or 2 per cent per year. This is "an extremely high" rate and approximately three times that of associates of other manifest and latent apical index cases in colored families. The death rate for the associates of fatal and sputum-positive index cases in colored families is also high, 16.7 per 1000 or 1,670 per 100,000 person-years. On the basis of the findings in this survey it has been possible to determine the prevalence of tuberculosis and the risk of its occurrence in family associates of tuberculous patients with various types of the disease, forming a basis for the development of a "sound program" for the control of tuberculosis.

Industrial Medical Services for Small Industries

L. G. WELT (*Yale Journal of Biology and Medicine*, 14:673, July, 1942) calls attention to the growing importance of industrial medicine and hygiene to "safe-guard man power" in these days when "every man-day of work is absolutely essential if the present conflict is to be won." Especially in small industrial plants employing under 500 persons, very little has been done in this direction. In small

plants as well as in large, the industrial medical program should include the following: The pre-placement examination, which is designed to fit the man to the job where he can produce most efficiently in a healthy state of mind and body. Periodic physical examination, especially for employees in particularly hazardous occupations, employees in the older age groups, and those who showed some physical defects at the pre-placement examination. The services of a nurse, at least part-time, to maintain "a simple but efficient first aid station," to represent the liaison between employer and employee, to record cases of absenteeism, to carry out "minor therapeutic procedures" under the direction of the plant physician. The plant physician should not do only occasional physical examinations for industry; he should be familiar with the industrial hazards and medical problems and should be prepared to treat industrial diseases and accidents in addition to making the necessary physical examination; one physician may serve several small plants. Another important part of the industrial medical service is the preventive program—the study of and the instruction of the management and the workers in the methods of preventing industrial disease and accidents; the plant physician should ask for assistance in this work from other agencies interested in industrial hygiene. The author suggests also that it is important to seek the cooperation of organized labor in this program—a factor that is too often disregarded in industrial hygiene work. The Section of Prevention of the Yale University School of Medicine has organized a plan to provide medical services to a small group of industrial plants with a total personnel of about 1000; according to this plan each plant appoints a plant physician from practitioners in the local community; this physician is to make physical examinations and treat workers who are injured in the plant or develop an industrial disease; an industrial nurse is to be appointed who divides her time among the plants accepting the plan. The supervision of the program and especially of industrial hygiene is in the hands of the Sec-

tion of Preventive Medicine of the School of Medicine. The supervisor is entitled to use "the records, clinical material and experience" obtained in carrying out this plan, in order to study the problems of industrial medicine and hygiene in small industries and to "make efforts to improve the situation." The cost for these services varies with the size of the plant but may be estimated on the basis that the physician receives not less than \$2.00 for each physical examination, is paid on a "fee-for-service" basis for treating industrial diseases; and the cost to the plant for other services shall be \$1.50 per employee per year.

Ventilation Requirements for Radium Dial Painting

W. C. L. HEMEON and ROBLEY D. EVANS (*Journal of Industrial Hygiene*, 24:116, May, 1942) state that because of the "recent unprecedented demand" for luminous dials for aircraft instruments and other "machines of war," the protection of the health of the workers who do radium dial painting has become a problem of great importance. One of the protective measures to be enforced is that of adequate ventilation; other measures deal with minimizing contact of the skin with the radium paint and preventing its ingestion. The authors consider only the question of ventilation. The "tolerance concentration" of radon per liter of air has been found to be 10-11 curie. Rules for ventilation which will prevent a concentration of radon above this level are outlined as follows. Radium dial painting should be carried out in booths through which air is exhausted at a rate of 50 cubic feet of air per minute. The cabinets in which the painted dials are stored or dried should also be ventilated at a rate of not less than 360 cubic feet of air per minute per 1000 dials stored, or so as to induce not less than an average face velocity of 75 linear feet per minute through the area of the doorway when doors are opened. Radium painted dials should always be located so that the radon formed is withdrawn by local exhaust or diluted so that its concentration does not exceed the "tolerance con-

centration." Containers of radium paint that have been sealed for several hours must be opened inside a hood or ventilated cabinet.

Epidemiological Methods Used in the Control of Venereal Diseases in New York City

T. ROSENTHAL and H. GOODMAN (*New York State Journal of Medicine*, 42: 1346, July 15, 1942) outline various epidemiological methods employed by the Bureau of Social Hygiene of the New York City Health Department in cases of communicable syphilis and gonorrhea. If the case is reported by a private physician, the assistance of the bureau is offered to the physician in discovering the source of infection and examining contacts. The physician is also requested to report if the patient lapses from treatment; if this occurs, the case is reported to the Bureau of Nursing for follow-up and return of the patient to treatment. The procedure carried out in cases of venereal disease reported by various institutions or official agencies varies according to whether or not

such institution or agency has its own facilities for case investigation; if necessary the Bureau gives assistance in this matter. Other special methods of case investigation are employed through reports of positive premarital examinations, reports of prenatal examinations of pregnant women, birth certificates, reports of death from neonatal syphilis, and reports of exclusion of children from schools because of communicable venereal disease. Every effort is made to bring patients with communicable venereal disease found through these sources under treatment and to discover contacts. "Recalcitrant" patients with venereal disease in communicable form may be forcibly hospitalized; this not only ensures treatment until they can no longer spread infection, but also gives an opportunity to determine the source of infection and investigate contacts and bring such persons under treatment. The data from all cooperating venereal disease clinics (municipal and voluntary hospital clinics) are centrally tabulated, affording a valuable source of information and aiding especially in tracing lapsed cases and returning them to treatment.

OPHTHALMOLOGY

Operative Results in Two Hundred and Eleven Cases of Convergent Strabismus

J. H. DUNNINGTON and M. C. WHEELER (*Archives of Ophthalmology*, 28:1, July, 1942) report a study of 211 cases of convergent squint in which operation was done; in most of the cases a resection of the external rectus and recession of the internal rectus muscle of the same eye were performed simultaneously. The strabismus had been noted at birth in 28 per cent of these patients; it appeared before the age of four years in 80 per cent. In 68 per cent of the patients the refractive error was less than 3 D. of hyperopia; severe anisometropia was present in only 7 patients. The follow-up was "adequate" in only 163 cases in this series. In 70, or 43 per cent of these cases, the results were satisfactory, with a residual deviation of not more than 10 prism di-

opters for either distance or near vision. In 72, or 44 per cent, there was "under-correction," i.e., a residual deviation of more than 10 prism diopters; yet a second operation was advised for only 18 of these patients and carried out in 15; this indicates, the authors state, that while the result of the primary operation was not "ideal," it was "not bad enough to warrant further surgical intervention" in most instances. They note also that in such cases the patient is often "perfectly happy over the result," although the surgeon is not satisfied. Some degree of over-correction was obtained in 21 cases, 13 per cent, but a corrective secondary operation was done in only 3 of these cases. The age at onset, the refractive error and the degree of deviation did not have any apparent relation to the result of operation; the age at which operation was performed also did

not influence the result, except that there was a higher percentage of cases of over-correction in those operated in the three to eight years of age period. There were no postoperative infections in this group, and only a few postoperative complications—8 subconjunctival cysts and 3 granulomas of the conjunctiva. Postoperative diplopia was frequent, but it was only temporary as a rule; in 3 cases it was persistent, but was "distressing" in only one case; all these 3 patients were adults.

COMMENT

Operations to correct squint may be considered triumphs of ophthalmic surgery. The results are almost always cosmetic improvement and rarely, if ever, is binocular vision attained. If we consider the defects in the squinting eye and carefully study these cases before and after operating, the value of a careful report of this type is evident. The difficulties to be overcome are considerable and it is too much to ask of any operator that every case will be corrected by one operation.

R.I.L.

Influence of a Constricted Pupil on the Field in Glaucoma

S. ENGEL (*Archives of Ophthalmology*, 27:1184, June, 1942) has found that constriction of the pupil still further narrows the defective visual fields in glaucoma. This was first noted in a patient who had lost the vision of the left eye owing to glaucoma in spite of several operations; the glaucoma simplex in the right eye was being controlled by the use of miotics—physostigmine and pilocarpine. On one occasion the visual fields were tested about one hour after instillation of the physostigmine-pilocarpine drops when the pupil was of "pinpoint" size; there was a marked narrowing of the visual field for red as compared with previous examinations, which had been made prior to the morning installation of the miotics. The following day, when the patient was examined prior to instillation of the physostigmine-pilocarpine drops, the visual fields were the same as they had been for the last two months. The author has since examined a number of glaucomatous patients with visual field defects before and half an hour

after instillation of physostigmine salicylate solution which reduced the diameter of the pupil by 1 mm. or more. In all these cases the visual fields that were already constricted were further narrowed by the miosis induced by physostigmine; normal visual fields were not affected. This change in the visual field produced by miosis in glaucoma might give the impression of "progressive" glaucoma, leading to "unnecessary therapeutic procedures," if the effect of miosis on the fields is not recognized.

COMMENT

The smallest effective pupil is 3 mm., and smaller pupils always reduce the patient's acuity, at least for a time after the miotic is instilled. This is a common complaint by glaucoma patients but it is the lesser of two evils and so much less than the permanent loss of vision that it must be accepted. Some glaucoma cases can be controlled only by keeping the pupil very small, but if the tension can be controlled and the field loss held off, it is a small price to pay when the alternative is an operation.

R.I.L.

The Use of Heparin in the Treatment of Thrombosis of the Central Vein of the Retina

R. O. RYCHENER (*Southern Medical Journal*, 35:652, July, 1942) reports the use of heparin in the treatment of 9 patients showing complete or partial occlusion of the central vein of the retina. There were 6 males and 3 females in this group, all showing "unmistakable signs of retinal arteriosclerosis," and general arterial hypertension. The youngest patient was forty-one years of age, the oldest sixty-eight. The heparin was given by intravenous saline drip—1 cc. of heparin solution (Connaught Laboratories, University of Toronto) to 100 cc. physiologic saline. The total dosage and the rate of administration vary with each patient, depending upon the effect on blood coagulation time; the aim of the treatment is to maintain the coagulation time at about 15 minutes, i.e., two or three times the normal. As a rule, 20 to 30 cc. of heparin solution are given daily for between seven and ten days. Of the 3 patients with partial occlusion of the

retinal vein, 2 responded well to the heparin treatment with a return of normal visual acuity; the third patient, forty-one years of age, who theoretically "should have responded best of all," showed no improvement. Of the 6 patients with total occlusion of the retinal vein, one showed immediate improvement in the fundus and in vision, which has continued for two years; another patient showed a subjective visual improvement, which has not been verified by examination; 4 showed no improvement. Heparin has no ill effect if the dosage is so regulated that the coagulation time does not exceed twenty minutes; hence the author is of the opinion that patients with occlusion of the central retinal vein should be given the chance of "whatever benefit may be obtained from a course of heparin therapy," except that it is useless in total occlusion of long standing. It is indicated, however, for patients with total occlusion that has been present for three weeks or less; and also for patients with "tributary occlusions," specially "if the thrombosis appears to be extending to other branches of the central vein."

COMMENT

Closure of the central vein means disease of the vessel walls and is a serious matter. Sections of the central vessels in the optic nerve in similar cases by George Coats demonstrate that canalization of thrombi does take place and is similar to the same process in cerebral vessels. It can not be surely known yet whether the credit assigned to heparin is merited. On the contrary, the results in these cases require a thorough trial of any treatment that offers anything.

R.I.L.

The Use of Riboflavin in the Treatment of Corneal Disease

K. W. COSGROVE and P. L. DAY (*American Journal of Ophthalmology*, 25:544, May, 1942) report the use of riboflavin in the treatment of various types of corneal disease in 28 cases. Cases of interstitial keratitis associated with congenital syphilis improved much more rapidly when riboflavin was employed in addition to antisyphilitic treatment than with the latter alone. Two patients with

phlyctenular conjunctivitis also showed rapid improvement under riboflavin therapy; one of these patients had shown no improvement under other forms of treatment for two months. In some cases of keratitis in which no etiologic factor could be discovered, there was a rapid improvement when riboflavin was added to the patient's diet; in one case in which the vitamin was omitted from the diet for a time, a recurrence resulted. Cases of allergic keratitis did not respond to riboflavin therapy. There was no improvement in one case of linear keratitis of "obscure etiology;" in another case of linear keratitis associated with mature cataracts, the keratitis showed improvement but there was no change in the cataract. Four illustrative cases are reported. In these cases the riboflavin was given by mouth in doses of 8 mg. daily, or by intramuscular injection, 5 mg. every other day.

COMMENT

The reports of the use of the various vitamins in corneal disease are so variable that a prognosis cannot be made. It will be some time before we can know which remedy to use and in what type of case, before we shall be justified in expecting improvement. The slit-lamp has improved the diagnosis of corneal diseases tremendously but there are a number of conditions like rosacea keratitis, nodular keratitis of Salzmann, and various allergies, in which there is no pathological picture to make the decision free of doubt.

R.I.L.

Penetration of Sulfathiazole Into the Eye

H. G. SCHAIK and I. H. LEOPOLD (*Archives of Ophthalmology*, 27:997, May, 1942) report further studies on the penetration of sulfathiazole into the eye. In their previous studies (see abstract in *Contemporary Progress, Med. Times*, 69: 406, Sept., 1941), they had found that in normal eyes sulfathiazole did not reach the same high concentration in the aqueous humor as other sulfonamides in the same experimental animals (cats). In these more recent experiments, a microcrystalline form of sulfathiazole was employed; high concentrations of the drug in the blood re-

sulted from intraperitoneal injection in the experimental animals; the concentration in the aqueous humor was relatively low, as with the sodium sulfathiazole given orally. When inflammatory reaction was induced in the eyes by the intraocular inoculation of streptococci, the concentration of sulfathiazole injected intraperitoneally was much higher in the aqueous humor than in normal eyes; the increase was proportionate to the severity of the inflammatory reaction. When vasodilatation was produced by injection of histamine into the vitreous humor, the concentration of sulfathiazole

in the aqueous humor increased as compared with that in the normal eye, but not to the same extent as in eyes showing an inflammatory reaction to infection. These findings show that when sulfathiazole is indicated in ocular infections by the nature of the infection, it can be employed, since its concentration will be adequate in the infected ocular fluids. The authors note that this conclusion is given further support "by recent reports on the therapeutic effectiveness of sulfathiazole against meningitis . . . because of the similarity of aqueous and spinal fluid in composition."



CANCER

—Concluded from page 389

4. The program in Nassau County is offered as an example of an organized community effort to combat cancer—to educate the people as to the means of prevention and to provide facilities for treatment and cure. It is an example of co-operation of official and non-official health agencies united in one group to the mutual benefit of all and to the community at large. A vital cog in this program is the service of the public health nurse, working under the official public health agency.

5. The great scourges of childhood have been brought pretty well under control. Some diseases, notably diphtheria and typhoid fever, have been brought almost to defeat with resulting enormous reductions in morbidity and mortality. For every

disease crushed in childhood it is possible another will rise in middle age and beyond. Today, with more than 150,000 cancer deaths annually, the battle does not belong in private hands; it requires organization and a planned and effective program. Such a program integrates the services of the health department, the physician, the voluntary health agencies, and the community itself.

6. The cancer war may never be won to the extent that the disease will be completely eradicated; every case that is prevented and every case that is cured constitutes a definite victory. A clearer understanding of the situation will help to relieve much of the fear based on ignorance and despair. These facts challenge every public health department and official.

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ASSOCIATED PHYSICIANS

OF LONG ISLAND



133rd REGULAR MEETING

THE 133rd regular meeting of the Associated Physicians of Long Island was held at Rockville Centre, Long Island, on Tuesday, September 22, 1942. The Scientific Session was held at the South Nassau Communities Hospital at 3 P. M. The program was presented by the members of the staff of that hospital. The following papers were read:

1. The Value of X-ray in Pregnancy, by Dr. Austin B. Johnson. Discussion by Dr. William C. Meagher.

2. Gastroscopic Diagnosis of Ulcerative Lesions of the Stomach, by Dr. Dwight T. Bonham. Discussion opened by Dr. Henry F. Kramer and continued by Dr. Frank B. Cross. The discussion was closed by Dr. Bonham.

3. Anoxia, by Dr. John N. Shell. Discussion opened by Dr. Douglas H. Batten. Continued by Dr. Charles C. Murphy and closed by Dr. Shell.

4. Use and Abuse of Castration in Carcinoma of the Prostate. This paper was to be read by Dr. Ray M. Bowles but in his absence was read by Dr. Hancock.

The President, Dr. Charles C. Murphy, requested that the papers and the discussions be handed to the Chairman of the Publicity Committee, Dr. Thomas B. Wood.

The President also read a telegram from Mrs. Ethel T. Hood, President of the Board of Directors of the South Nassau Communities Hospital. To be filed. The Scientific Session was followed by a brief business meeting which consisted of the (1) report of the Chairman of the Membership Committee, Dr. Martin. The following candidates were elected to membership:

- Dr. Frank P. Light, Minnesota 1929,
proposed by Dr. Armstrong.
Dr. Carl W. Lupo, Vanderbilt 1917,
proposed by Dr. Edwin A. Griffin.
Dr. Francis J. Buckley, George Washington, 1929,
proposed by Dr. Carl A. Hettessheimer.

(2) The report of the Committee on Public Health was presented by Dr. Jacques, who called attention to the conflict between the handling of luetic cases as listed in the newspapers and as acted upon by the various draft boards.

(3) The report of the Publication Committee was presented by Dr. Wood, who called attention to the publication in the MEDICAL TIMES of many of the recent papers that had been read before the Society.

The President, Dr. Charles C. Murphy, made the following appointments: Nominating Committee, Dr. Charles A. Anderson of Brooklyn, Chairman.

- Dr. John B. Healy, of Suffolk
Dr. A. M. Bell, Nassau
Dr. Gerald E. Pauley, Queens

The President also appointed the following to serve on the Auditing Committee:

- Dr. Thomas B. Wood
Dr. William C. Meagher
Dr. A. W. M. Marino.

It was moved and seconded and duly passed that the annual dues of \$5 continue in effect. The meeting adjourned at 5:15 P. M. At 7 P. M. about 50 members of the Society proceeded to the Rockville Country Club where an excellent steak dinner was served and where they were entertained by feats of magic. Following this they adjourned to the cocktail lounge and bar to partake of the joys of good fellowship.

Medical BOOK NEWS

Edited by

ALFRED E. SHIPLEY, M.D., Dr. P.H.

All books for review and communications concerning Book News should be addressed to the Editor of this department, 1313 Bedford Avenue, Brooklyn, N. Y.

Blood Grouping Tests

Blood Grouping Technic. A Manual for Clinicians, Serologists, Anthropologists, and Students of Legal and Military Medicine. By Fritz Schiff, M.D. and William C. Boyd, Ph.D. New York, International Science Publishers, Inc. [c. 1942]. 248 pages, illustrated. \$vo. Cloth, \$5.00.

ALTHOUGH this volume on blood grouping technic is supposed to be a translation and revision of Schiff's manual, which was widely used in Europe up to the time of the war, it is really an entirely new book. Schiff's German book had only 100 pages while the new book has 250 pages and contains less than half the material from the original manual. Though Dr. Schiff is named as the senior author, the bulk of the work fell on Boyd's shoulders on account of Dr. Schiff's untimely death. The authors have both made fundamental contributions to the field of blood grouping and were therefore excellently equipped for the task which they undertook. As expected, therefore, this book gives an authoritative survey of the best technics for carrying out grouping investigations in connection with transfusions, and for forensic and anthropological investigations.

One of the striking features of the manual is the very systematic method of outlining the various topics covered. The book begins with an outline of the theoretical foundations of the tests for the A-B groups, A₁-A₂ subgroups, M-N types, etc. In the second section the general technics of blood

group determination are described, including suitable technics for determining the subgroups, M-N types and Rh type. Inhibition tests for determining group substances in secretions are described as well as the demonstration of group substances in solutions and extracts by the complement-fixation, precipitation and flocculation reactions.

In the third section, blood grouping, with special reference to its various applications, is presented. First, the tests are described from the standpoint of their application in transfusion. Here a brief description of blood banks and blood substitutes is presented which will be found of particular interest at the present time. Also described are methods of tracing the fate of the transfused red blood cells. The heredity of the blood group factors, in particular from the standpoint of their application in paternity cases, is then presented, and also technics for the examination of blood stains of other materials are given. The final section of the book will be of interest primarily to anthropologists, since here

are described the relationships between blood group factors in man, apes, monkeys and lower animals, and the different distribution of these factors in the peoples of the world.

All in all, the authors have succeeded admirably in the task which they set them-



Classical Quotations

• In all those who had so long labored under the disease, as to have been destroyed by it, or by its consequences, the corpora vertebiarum were completely carious, the intervening cartilages totally destroyed, and a quantity of sanies lodged between the rotten bones, and the membrane investing the spinal marrow.

Percivall Pott
Remarks on That Kind of Palsy of the Lower Limbs which is Frequently Found to Accompany a Curvature of the Spine, and is Supposed to be Caused by It, Together with Its Method of Cure. London, printed for J. Johnson, No. 72, St. Paul's Church-Yard. 1779.

selves, namely, to present suitable techniques for grouping tests satisfactory for routine work and for the manifold applications of the subject.

A. S. WIENER

The Mayo Clinic Papers

Collected Papers of the Mayo Clinic and the Mayo Foundation. Edited by Richard M. Hewitt, M.D., and others. Volume XXXIII, 1941. Philadelphia, W. B. Saunders Company, [c. 1942]. 1099 pages, illustrated. 8vo. Cloth, \$11.50.

THIS is Volume XXXIII of the *Collected Papers of the Mayo Clinic* and contains papers written for publication from December 1, 1940 to November 30, 1941. Of the 659 articles, only 64 have been selected to appear in full—others appear by abridgement, in abstract or by title. Even with this restriction, the volume has 1099 pages. There is a more generous handling of the articles on AVIATION MEDICINE, which constitute the opening section of the book and cover 86 pages. As was the case in previous volumes, the selection of articles for inclusion in full was premised on their value and interest to the general practitioner, the diagnostician and the general surgeon. The papers are divided on an anatomical and regional basis, with chapters on Radiology and Physical Medicine, and Anaesthesia and Gas Therapy. A characteristic of publications from this Clinic is their readability; and from a wide range of subjects one is privileged to follow the experiences and results of a group devoted to affording the public not only adequate medical care, but also scientific modern medicine.

JOSEPH RAPHAEL

Geriatrics

The Care of the Aged (Geriatrics). By Malford W. Thewlis, M.D. Fourth edition. St. Louis, C. V. Mosby Company, [c. 1942]. 589 pages, illustrated. 8vo. Cloth, \$7.00.

THE more recent additions of this work mark very accurately the rate at which interest in its subject has proceeded—1924, 1941, 1942; note the lapses of seventeen years and one year. While the total population of this country has increased 7 per cent since 1930, there has been an increase of 35 per cent of persons over 65 years of age during the same period (this age

group now numbers at least 8,956,000). The author looks for still greater disproportion between the young and the old as a result of the present war. This will give us still more Petains and Gandhis, for the mentality of the old is bound more and more to color our culture as the birth rate falls and the tide of youth recedes.

The present year has witnessed the birth of the American Geriatrics Society and there is a growing literature, one phase of which is the consideration which modern works on internal medicine are beginning to give to this subject. Thus there is a notable timeliness in the appearance of Dr. Thewlis's new edition.

In this fourth edition new material on chemotherapy, fractures, anesthesia, respiratory infections, liver function, blood transfusion and clinical densimetry has been added, so that the work takes first rank in its field.

ARTHUR C. JACOBSON

Shock

Shock: Its Dynamics, Occurrence and Management. By Virgil H. Moon, M.D. Philadelphia, Lea & Febiger, [c. 1942]. 324 pages, illustrated. 8vo. Cloth, \$4.50.

THE subject of this book is particularly timely in this hour of conflict. However, the reviewer would not only urge every military surgeon to read it but feels it has as important a message for all medical men: surgeons, internists and pathologists. Dr. Moon, a trained pathologist, writes with crystal clearness. Each chapter has a summary, and the book is divided into two parts. This leads to considerable repetition which drives his points home but is a little overdone.

The basis of his argument is that shock is a pathological entity based on injury to capillary endothelium. There are three fundamental spaces: 1) the space within the capillary, 2) that between the capillary and the cell and, 3) that within the cell. The osmotic balance is destroyed as soon as the endothelium of the capillary is injured by toxins from injured tissues, by lack of oxygen or by any one of a thousand other toxic agents. It becomes abnormally permeable and the fluid elements of the blood leak out. This causes hemo-

concentration which is easily discovered clinically by red blood cell counts, hemoglobin readings, or hematocrit tests. Pulse and blood pressure changes appear much later, in fact so late that by then the condition has become hopeless. The time to treat shock is before it develops.

Vivid clinical and experimental pictures are given of shock produced particularly by crushed tissue, burns and intestinal obstruction. Moon also demonstrates the total difference between the pathological aspects of shock and hemorrhage. Although hemorrhage may so reduce the resistance of the individual that toxins more easily produce shock. Hemorrhage by itself causes death without shock. In shock the capillaries of the abdominal and thoracic viscera, in particular, are found distended with red blood cells, the arteries and veins contracted and empty and the tissues dripping with edema. Hemorrhage produces pallor of these organs with empty capillaries and dry tissues.

The second part of the book is devoted mainly to clinical diagnosis and treatment. Various blood substitutes are commented upon and the great importance of oxygen in the prevention and treatment of early shock is emphasized.

WM. H. FIELD

Barker's Autobiography

Time and the Physician. The Autobiography of Lewellys F. Barker. New York, G. P. Putnam's Sons, [c. 1942]. 350 pages, illustrated. 8vo. Cloth, \$3.50.

IN this volume of reminiscences Dr. Lewellys F. Barker, Osler's successor at Johns Hopkins, adds his life story to the long list of Hopkins biographies. Barker's position, after his predecessor had left, could not have been an easy one. His distinction as a teacher and his many admirable personal qualities soon won him the esteem of his fellows. The more interesting chapters are those devoted to the early days of the medical school and especially that devoted to his decision to resign when a full time chair was instituted. There are many passages so highly personal that few readers, unacquainted with the Baltimore milieu, will find of interest. Dr. Barker writes with an amiable disregard, to which his eminent position may

entitle him, of all pretenses to literary style. Nevertheless, this is the record of an important career and an engaging personality.

MILTON PLOTZ

Injuries in Sports

Athletic Injuries. Prevention, Diagnosis and Treatment. By Augustus Thorndike, M.D. Second edition. Philadelphia, Lea & Febiger, Inc. 1942. 216 pages, illustrated. 8vo. Cloth, \$3.00.

THIS is the 2nd edition of this monograph; the main change being in a revision of the statistics on the relative frequency of different types of injuries. There is also a new section on physiology. The book deals with the author's experiences as Athletic Surgeon to the Harvard teams since 1932. Most of the injuries appear to be those sustained in football. The frequency of various sprains and muscle injuries is broken down to the exact muscle or ligament involved, and the author is very careful to impress the necessity of an exact diagnosis. However, the book gives no directions for making those diagnoses, and the reader is referred to larger surgical works.

As is to be expected sprains and strains account for most of the injuries, and there are several excellent illustrations of strapplings. The drawings of ligamentous and muscle contusions are clear and adequate.

The book is recommended to any surgeon treating athletic injuries, but must be supplemented by larger surgical works for more adequate diagnosis and treatment.

R. T. PERCIVAL

An Embryologic Text

Textbook of Embryology. By Harvey E. Jordan, M.A., and James E. Kindred, M.A. Fourth edition. New York, D. Appleton-Century Company, [c. 1942]. 613 pages, illustrated. 8vo. Cloth, \$6.75.

IN our opinion this is one of the two best modern textbooks on the subject of embryology. Its outstanding feature is the mature, scholarly presentation of text material. The method of approach is primarily anatomic, but enough developmental physiology has been included to give a real flavor.

Of special interest to the medical man should be the well chosen concise accounts of developmental anomalies which are treated in a separate section at the end of each chapter.

GEORGE H. PAFF

Writings of a Medical Reformer

Four Treatises of Theophrastus von Hohenheim Called Paracelsus. Translated from the original German, with introductory Essays by C. Lilian Temkin and others. Edited by Henry E. Sigerist. Baltimore, Johns Hopkins Press, [c. 1941]. 256 pages. 8vo. Cloth, \$3.00.

DR. SIGERIST'S thorough and careful study of Four Treatises by Paracelsus, provides an excellent introduction to one who is all too little known.

This volume should compel many to revise their present opinion of this physician. It was very unfortunate that the opposition of the medical profession of his day should have prevented him from publishing his ideas, regardless of their unorthodoxy. Fantastic as many of his concepts were, he nevertheless achieved some very practical results. His treatise, *Ailments of Miners*, is well known as being the first thorough treatise on occupational disease. The reader will be amazed at his understanding of the symptoms of arsenical and mercurial poisoning.

Paracelsus traveled extensively, preferring to gather his knowledge of healing directly from those who practised it, rather than from textbooks which were few and repetitious. To him observation or experience was the true road to medical

skill. Using German instead of Latin, he was compelled to invent neologisms and new methods because he often described what the medical profession ignored.

Dr. Sigerist has contributed a valuable addition to the medical library. All physicians and students of medical history, should find this a most instructive volume.

HARRY SACKREN

Military G. U. Emergencies

Urology in War. Wounds and Other Emergencies of the Genito-Urinary Organs, Surgical and Medical. By Charles Y. Bidgood. Baltimore, Williams & Wilkins Company, [c. 1942]. 78 pages, illustrated. 8vo. Cloth, \$2.00.

THIS is an exceedingly practical and useful small volume describing in most interesting and concise detail the urologic problems that might arise during the war emergency.

As a reference volume for the general surgeon called upon to do urology, it would be invaluable. The illustrations by Mr. Didusch are as always, most excellent. Of particular interest to all surgeons is the chapter on anesthesia. It should be on the shelf of every practitioner who has any leanings toward urology.

FEDOR SENGER

BOOKS RECEIVED for review are promptly acknowledged in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.

Castor Oil and Quinine. Once a Doctor, Always a Doctor. By George W. Vandegrift, M.D. New York, E. P. Dutton & Company, Inc., [c. 1942]. 252 pages. 8vo. Cloth, \$3.00.

Starling's Principles of Human Physiology. Eighth edition by C. Lovatt Evans, F.R.C.P. Philadelphia, Lea & Febiger, [c. 1941]. 1247 pages, illustrated. 8vo. Cloth, \$10.00.

Advances in Internal Medicine. Editor, J. Murray Steele, M.D. Volume 1. New York, Interscience Publishers, Inc., [c. 1942]. 292 pages, illustrated. 8vo. Cloth, \$4.50.

First Aid to the Injured and Sick. An Advanced Ambulance Handbook. Edited by Norman Hammer, M.R.C.S. Eighteenth edition. Baltimore, The Williams & Wilkins Company, [c. 1941]. 336 pages, illustrated. 16mo. Cloth, \$2.00.

First Aid, Surgical and Medical. By Warren H. Cole, M.D. and Charles B. Puestow, M.D. New York, D. Appleton-Century Company, [c. 1942]. 351 pages, illustrated. 8vo. Cloth, \$3.00.

Cineplastic Operations on Stumps of the Upper Extremity. By Rudolf Nissen, M.D. and Ernst Bergmann, M.D. New York, Grune & Stratton, [c. 1942]. 88 pages, illustrated. 8vo. Cloth, \$3.75.

Clinical Parasitology. By Charles F. Craig, M.D. and Ernest C. Faust, PH.D. Second edition. Philadelphia, Lea & Febiger, [c. 1940]. 772 pages, illustrated. 8vo. Cloth, \$8.50.

Referred Pain: A New Hypothesis. By G. W. Theobald, M.D. London, Blackfriars House, New Bridge Street, E.C. 4, [c. 1941]. 40 pages, illustrated. 4to. Paper, 3s.

Editor's Note.—In Dr. A. W. Martin Marino's review of Hirschman's "Synopsis of Ano-Rectal Diseases" in the October issue of the MEDICAL TIMES a typographical error crept in which made the description of this important work read "small but slightly" instead of "small but slightly." For this we offer an apology to the highly esteemed author.